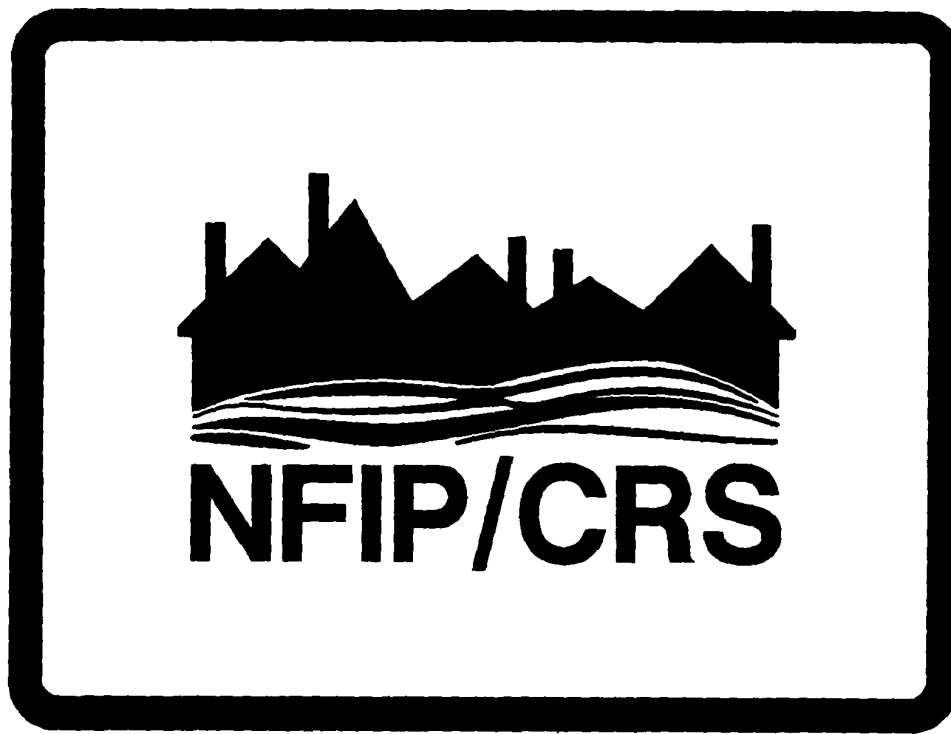


**National Flood Insurance Program
Community Rating System**



**CRS CREDIT FOR
OUTREACH PROJECTS**

January 1999

Note on this January 1999 Edition: This document was revised to reflect the following major changes in the 1999 *CRS Coordinator's Manual*:

- The points for the 10 topics that are used for scoring outreach projects to the community (OPC) and to floodplain properties (OPF) were revised.
- There is no adjustment of the points based on the frequency of distribution of a project. All projects must be conducted at least once each year.
- There is no impact adjustment to reflect the area covered by the project. An OPC project must reach at least 90% of the properties in the community and an OPF project must reach at least 90% of the properties in the floodplain.
- There is a new alternative to the 60 points maximum for additional outreach projects (OPA)—100 points for outreach projects conducted pursuant to a public information program strategy (OPS). This credit is dependent on the community preparing a strategy document following a designated procedure.

It should be noted that in spite of these changes, communities will continue to receive credit for outreach projects designed according to the old credit criteria. The OPC, OPF, and OPA examples in this publication are the same ones used in the 1995 and 1996 editions. There have been only minor changes in the total points for these examples.

This document was prepared for the Community Rating Task Force by the Insurance Services Office, Inc., with support from French & Associates, Ltd., and the Association of State Floodplain Managers, Inc.

If a community is interested in applying for flood insurance premium credits through the Community Rating System (CRS), it should have the *CRS Application*. The *CRS Coordinator's Manual* provides a more detailed explanation of the credit criteria. These and other publications on the CRS are available at no cost from:

Flood Publications
NFIP/CRS
P.O. Box 501016
Indianapolis, IN 46250-1016
(317) 848-2898
Fax: (317) 848-3578

They can also be viewed and downloaded from FEMA's Website, www.fema.gov.nfip

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The cooperation provided by Kingsport, Tennessee; Wrightsville Beach, North Carolina; Charlotte County, Florida; Boulder, Colorado; Sacramento County, California; Orland Hills, Illinois; King County, Washington; Skagit County, Washington; and Dare County, North Carolina, is appreciated.

CREDIT CRITERIA

The 300 series of the Community Rating System (CRS) provides credit to communities that advise people about the flood hazard, flood insurance, ways to prevent or reduce flood damage to buildings, and the natural and beneficial functions of floodplains. These public information activities serve property owners, insurance agents, lenders, and real estate agents. In most of them, the people served have to request the information. For example, they are provided with information after they ask if a property is in a floodplain or request an elevation certificate.

However, under Activity 330 (Outreach Projects), the CRS credits community projects that take a more proactive approach. This activity provides CRS credit for projects that reach out to people and give them information, even when they do not ask for it. Its objective is to make people aware of the flood hazard, flood insurance, ways to prevent or reduce flood damage, and the natural and beneficial floodplain functions. Outreach projects are designed to encourage people to seek out more information and take steps to protect themselves and their properties.

Activity 330 is one of the most popular CRS activities. However, many applications have included materials that receive little or no credit. This publication is provided to clarify the criteria for CRS credit and to show how local programs are scored.

330 Outreach Projects

Credit points for Activity 330 are based on four types of outreach projects. To receive credit under this activity, a community may do the following types of projects, which are known by their acronyms:

OPC: Outreach projects to the entire community

OPF: Outreach projects to floodplain residents

OPA: Additional outreach projects

OPS: Outreach projects pursuant to a public information program strategy

The last type, OPS, is new in the 1999 *CRS Coordinator's Manual*. It is an alternative to crediting OPA projects.

Each of these types of projects have specific criteria for CRS recognition. Under the first three, the credit points are based on how many topics are covered. The fourth, OPS, provides a flat 100 points, provided the strategy was prepared according to the credit criteria.

The basic criteria for CRS recognition of a project are discussed in Section 331 of the *CRS Coordinator's Manual*. The total score for Activity 330 is covered in Section 332, Credit Calculation. These section numbers coincide with the numbering system used in the *CRS Coordinator's Manual* and the *CRS Application*.

Outreach Projects to the Community (OPC)

These projects consist of sending written information through a newsletter, utility bills, or other document that is sent to all residents of the community. For example, publishing flood warning and evacuation instructions in the telephone book would be credited as an OPC. An example of an OPC project is included on pages 29–33.

A newspaper may be used provided the credit criteria are met and the information is not in a legal notice, small classified ad, or similar obscure location. To date, most projects have been either mailings (including enclosures to utility bills) or newsletters published by the local government that are sent free to all residents.

The topics do not all have to be covered in the same distribution, but the distribution must ensure that the topics credited are covered at least once each year. For example, a community with a quarterly newsletter may cover two topics in each edition and be credited for covering eight each year.

Here are the key credit criteria:

1. The project must be distributed to at least 90% of all the properties in the community. “Properties” can be counted as utility customers, tax parcels, or other measure that approximates all of the addresses in the community. Vacant lots need not be counted. Projects that are distributed to every “postal customer” or every water bill customer are credited because such approaches are expected to reach practically all properties.

A notice to a building owner is sufficient for notifying all the tenants of that building. Commercial newspaper articles and cable television shows usually are not credited because not everyone subscribes to a newspaper or cable TV. They can only be counted if the community can document that they reach 90% of the properties in the community.

2. The project must be implemented at least once each year. A one-time-only activity is not credited. This requires the community’s CRS Coordinator to make sure that the project (or a similar version) is done every year.

Outreach Projects to Floodplain Residents (OPF)

For this credit, notices must be distributed to residents of the Special Flood Hazard Area (SFHA), which is shown on the community’s Flood Insurance Rate Map (FIRM). The notice should also be sent to other areas known to have flooding problems. These include floodprone areas annexed by the community since the FIRM was published, local drainage problem areas, and other areas of surface water flooding that are not shown as floodplain on the FIRM.

Communities are encouraged to advise residents of sewer backup or groundwater problems, but such topics are not required for OPF credit. Often, such subsurface problems affect large areas of a community and methods to protect property from them are discussed in an OPC project.

In most cases, communities that have received OPF credit have mailed a letter or brochure to floodplain residents. This requires an accurate list of floodprone addresses (which is a good thing for any flood protection program to have). Another approach used by some communities has been to have a service organization, such as the Boy Scouts or a citizens flood committee, deliver a brochure door-to-door.

Here are the key credit criteria:

1. An OPF notice **MUST** clearly explain that the recipient's property is subject to flooding. Credit is provided for statements such as "your property is in or near the floodplain" and "you live in a flood hazard area." Just sending a map of the floodplain is not sufficient for OPF credit because many people have trouble reading maps. The message must be clear: the recipient of the information is at risk of flooding. Examples of OPF projects appear on pages 34–35 and 47.
2. The project must be distributed to at least 90% of all the properties in the SFHA. The other distribution requirements for an OPC (the first of the OPC credit criteria) apply here. If the community is at least 90% floodprone (e.g., a barrier island) and the OPF is distributed twice each year, the community can receive OPC and OPF credit for distributing the same project to everyone in the community.
3. Also, as with an OPC, the project must be implemented at least once each year.

Additional Outreach Projects (OPA)

This element credits other methods of getting the word out to people. Acceptable methods include a "flood awareness week," flyers inserted in local newspapers, public information booths at shopping malls or county fairs, cable television programs on flood protection, and radio call-in shows. Projects that do not qualify for OPC or OPF are often credited under OPA. Examples of OPA projects are discussed or shown on pages 42–46.

Public Information Program Strategy (OPS)

This new element is designed to encourage communities to develop their own public information programs and outreach projects specifically tailored to their needs. Unlike the previous three approaches, it does not matter how many topics are covered or whether the same things are done each year.

The credit is entirely dependent on implementing projects recommended by a public information program strategy that was prepared according to certain criteria. This approach assumes that a properly prepared strategy that reviews the problem, determines how to best reach the target audiences, and coordinates with other information programs will produce the best outreach projects for that community.

The benefit of the public information program strategy (OPS) is that the outreach projects are better thought out and are more appropriate locally than simply copying national models or

designing projects purely based on CRS credit points. Projects pursuant to a carefully prepared strategy are expected to be more effective than the other credited outreach projects, even though they may not reach as many people.

The secret to this is carefully preparing the strategy document. It should not be a quick exercise in writing a paper to justify what is currently being done or what the community can do cheaply. It should be a careful review of what public information activities are needed, what are already being done, and what new ones are needed. It is vital that people outside the community's government be involved in order to provide a different perspective and input on how to effectively reach residents.

Here are the key credit criteria:

- 1. Strategy team.** The community must establish a public information outreach STRATEGY TEAM. It need not be a formal organization. The team must have at least three members.

At least one team member must be someone familiar with the community's floodplain management program, such as the CRS Coordinator.

At least one member must be a representative from outside community government. This could be someone from the public schools, a neighborhood association, the Red Cross, insurance agencies, utilities, or other offices involved in education or floodplain management.

Other candidates for the strategy team could be:

- The local or county emergency manager
- The public information officer
- Floodplain residents
- Representatives of utilities or other companies that conduct their own public information programs and are concerned about public safety.

The strategy team can be as small as three people or it can be a larger group that wants to coordinate public information activities in a metropolitan area. Several communities can cooperate or the strategy may be prepared at the county level. In such cases, the community would have to have at least one representative on the strategy team.

It should be noted that the CRS does not intend that this create an unwarranted burden on communities. The strategy team can be a very informal group and need only meet once or twice a year. Existing committees or advisory boards may fulfill the role if they include at least the representation noted above to ensure coordination with groups outside the city or county government.

The membership of the team will vary by community. A coastal town dependent on tourism could have a motel or restaurant owner involved because explaining flood warning and evacuation procedures to tourists would be important. A community with one or two major employers may want to include the people responsible for employee newsletters.

2. Strategy document. The outreach strategy team must prepare a written document that covers the following points.

- a. The local flood hazard. This may already be written in an existing outreach project or floodplain management or emergency management plan.
- b. The flood safety and property protection measures appropriate for that hazard. This section should simply identify measures appropriate for the community's situation. It should not be a repeat of a flood safety or property protection outreach project.
- c. The flood-related public information activities currently being implemented by the community and by other organizations. This should be an inventory of what is done by the local government, the county emergency management agency, the schools, the state, and others concerned about flooding, such as a sanitary district or insurance agents. The objective of this requirement is to identify who is already informing the public. The strategy should capitalize on what is being done, coordinate messages, and develop new projects that fill gaps left by the existing programs.
- d. Goals for the community's public information program. These should be locally appropriate goals. If people have been killed in past floods, safety measures may be paramount. On a hurricane-prone coast, evacuation may be the most important goal. In areas of local drainage and sewer backup problems, publicizing self-help protection measures may be the top goal.
- e. The outreach projects that will be done each year to reach the goals. See item 3, below.
- f. The process that will be followed to monitor and evaluate the projects. See item 5, below.

The strategy may be prepared concurrently with the floodplain management plan credited under Activity 510 and the planning committee for each may be the same. The strategy document may be part of a floodplain management plan or it may be a separate paper.

3. Projects. At least one project must be implemented each year. The number and type of projects would be up to the community based on its goals and the principles of good public information programs. If the community receives credit under 331.a and b (OPC and OPF) of this activity, it must do additional projects to receive this OPS credit.

The projects do not have to be implemented by the community government. They can be targeted to the general public or to selected audiences, such as insurance agents and contractors, to help them implement their own outreach projects that work toward the program's goals.

The projects do not have to be the same every year. For example, the strategy may work with the schools to develop a flood safety curriculum the first year and then focus on workshops for insurance agents in later years.

The discussion of each topic must describe where to get more information. Examples of sources of more information could be local staff, the library, another agency, or a CRS credited activity, such as Activity 360 (Flood Protection Assistance).

4. **Documentation.** The community must submit documentation that the strategy will be implemented. This can be something as simple as a letter from the CEO stating that it will be followed. It does not require formal adoption by a city council, although it is recommended that elected officials be involved in the preparation or approval of the strategy.

If a joint strategy is prepared by several communities or at the county level, each community must document that it has adopted it locally in order to receive this credit.

5. **Annual evaluation.** The strategy team must meet at least once a year to evaluate what was done and what, if anything, should be changed. The strategy document must specify when and how this is done. A written report must be included in the CRS recertification that is due October 1 of each year.

The annual evaluation report must cover the following points:

- The goals of the community's public information program strategy.
- A list of the projects implemented to meet those goals and their objectives.
- A list of those projects that were not implemented or that did not reach their objectives.
- Revisions to the current projects and new projects to be implemented during the coming year, if different from the original strategy.

Communities may opt to use AW-332 in lieu of a formal written report. An example is on the next page.

Publicity for Other CRS Activities

Five other CRS activities require publicity or public information projects. It is recommended that communities review these requirements before they design their outreach projects in order to develop the most efficient method of advising people and making sure the messages are consistent. The five requirements are:

1. 320 (Map Information): In order to receive CRS credit for making map information available to inquirers, the community must publicize the service. Section 323.a in the *CRS Coordinator's Manual* lists four ways this can be done. Section 323.a.3 notes that one acceptable way is to describe the service in an OPC project credited under Activity 330 (see example under "Flood Hazard Areas" on page 31). However, use of a telephone book notice is specifically not credited as adequate publicity for the map information service.

Community: Floodville

333.e Public Information Program Strategy Evaluation

1. Goals of the community's Public Information Program Strategy:

Make residents aware of the flood warnings and safety precautions.

Make residents more aware of flood insurance, and

Familiarize residents with appropriate property protection measures.

2. Projects implemented to meet those goals and their objectives:

a. Utility bill notices on flood safety.

b. NFIP workshop for insurance agents.

c. Spring flood awareness week radio talk show on flood warning and safety and displays on protection measures in home improvement stores.

d. Working with the school district curriculum committee to develop flood awareness and safety classes.

e. Working with the homebuilders association on permit requirements and property protection measures.

f. OPC flood protection flyer,

g. Revised flood control district OPF brochure.

3. Were any projects not implemented or objectives not reached? If not, why?

b. Couldn't get enough insurance agents to sign up for the workshop, so it was cancelled.

g. Flood control district had already printed two years' worth of brochures and would not revise it until they are out of stock. The old ones were distributed instead.

4. What new projects should be implemented and what projects or objectives should be revised?

b. Meet with several insurance companies to determine best way to get them more informed about and interested in selling flood insurance policies.

d. Help school district develop materials for new 3rd grade curriculum on flood safety.

e. Hold workshop for the homebuilders with state and FEMA assistance.

For more information, contact: Jane Doe Phone: 101/555-1234

2. 360 (Flood Protection Assistance): This activity credits providing technical assistance to those who ask for it. Credit is dependent on publicizing the service. This can be done through an OPC or OPF notice credited under Activity 330 (Section 363.a.1 in the *CRS Coordinator's Manual*).
3. 503 (Repetitive Loss Area Outreach Project): Repetitive loss communities must conduct an outreach project to residents of the repetitive loss areas (Section 503.c in the *CRS Coordinator's Manual*). The project must cover the topics of property protection and flood insurance (see the discussion on topics, below). The project could qualify for OPA credit.
4. 540 (Drainage System Maintenance): Under Section 541.b.2 of the *CRS Coordinator's Manual*, full credit for stream dumping regulations depends on publicizing the regulatory requirement. Section 544.d notes that one way to meet this requirement is by conducting an OPC project credited under Activity 330 that covers drainage system maintenance.
5. 610 (Flood Warning Program): To receive credit for emergency warning dissemination under Section 611.b in the *CRS Coordinator's Manual*, the community must have an OPC or OPF outreach project that covers the topics of flood warning and flood safety (611.b.1(e)). The Kingsport and Charlotte County examples do this (see pages 29 and 36).

In all five cases, the publicity requirement can be met by an outreach project that is described in the community's public information program strategy (OPS). As long as the strategy document discusses the activity's publicity needs and the best way to reach the appropriate audience, any publicity method can be used.

EXAMPLE: Most active floodplain residents in Flood City belong to a neighborhood association, so representatives of two associations were asked to serve on the strategy team. They convinced the other team members that notices in the association newsletters are well-read. The team decided to publicize the city's flood protection assistance (Activity 360) in these newsletters, even though they don't reach 90% of all floodplain residents.

331 Credit Points

This section of the *CRS Coordinator's Manual* reviews how points are calculated for the four types of outreach projects. For the first three (OPC, OPF, and OPA), the points are based on the number of topics that are covered.

Topics

There are ten possible topics. The community must decide how much space to devote to a topic. The CRS will not credit minimal attention to a topic with phrases such as "buy flood insurance" or "protect your house from flooding." Normally the more specifically the topic is discussed, the better. Some communities have monthly newsletters that devote one or two pages to a different topic each month.

It must be remembered that the primary objective is to make people aware of some or all of the 10 flood topics. An outreach project does not need to be an encyclopedia. It should introduce the topic and state where and how to get more information or assistance.

The project documentation that is submitted with the CRS application or modification must be marked in the margins to show where the topics are covered. The following guidance is provided to clarify what should be included under each topic. If not all of these items are covered, partial credit is provided for the topic.

1. The local flood hazard: The project should include the names of the rivers, information about past floods, and additional data on local flooding, such as velocities or the possibility of mudflows. If the community provides map or additional flood hazard information as credited under Activities 320 (Map Information) or 360 (Flood Protection Assistance), the service could be publicized under this topic.
2. Flood safety: Emergency precautions, such as turning off the electricity and gas and avoiding running washes or unstable banks, should be discussed. This topic must be covered if the community is applying for credit for emergency warning dissemination under Activity 610 (Flood Warning Program).
3. Flood insurance: The project should note that flooding is not covered by standard property insurance but that flood insurance is available in the community. It should include some basic facts, such as types of coverage. If the community has any undeveloped coastal barriers where insurance may not be available, it should be discussed. This topic must be covered in the outreach project that is implemented to meet the annual notice requirement for repetitive loss communities (Section 503.c in the *CRS Coordinator's Manual*).
4. Property protection measures: Measures to protect a property from flood damage include retrofitting, grading a yard, correcting local drainage problems, and such emergency measures as moving furniture and sandbagging. If the community provides property protection or retrofitting advice as credited under Activity 360 (Flood Protection Assistance), the service could be publicized under this topic. This topic must be covered in the outreach project that is implemented to meet the annual notice requirement for repetitive loss communities.
5. Natural and beneficial functions: The outreach project should discuss the natural and beneficial functions of local floodplains, any unique local features, the importance of protecting these functions, and how they can be protected. A generic discussion would not be credited; for CRS credit the discussion must address local conditions. See the box on the next page for a list of the potential beneficial functions of a local floodplain.
6. Map of the local flood hazard: If the project includes a map of the community's flood hazard areas, it must meet the following criteria:
 - a. The map must clearly show every street affected, although all streets do not have to be named.
 - b. The floodprone area must be clearly shown through shading or another method.

Natural and Beneficial Floodplain Functions

Floodplains that are relatively undisturbed (or have been restored to a nearly natural state) provide a wide range of benefits to both human and natural systems. These benefits take many forms: some are static conditions (like providing aesthetic pleasure) and some are active processes (like filtering nutrients). There is some ambiguity over which of these benefits are properly termed "functions," which are "resources," and where the terms overlap. A fairly well accepted (but not necessarily comprehensive) list follows.

Water Resources: resources and functions that are part of or provide a benefit to the hydrologic cycles on the earth's surface and below ground

Natural Flood and Erosion Control

- Provide flood storage and conveyance
- Reduce flood velocities
- Reduce flood peaks
- Reduce sedimentation

Water Quality Maintenance

- Filter nutrients and impurities from runoff
- Process organic wastes
- Moderate temperature fluctuations

Groundwater Recharge

- Promote infiltration and aquifer recharge
- Reduce frequency and duration of low surface flows

Biologic Resources: resources and functions that benefit plants and animals

Biological Productivity

- Support high rate of plant growth
- Maintain biodiversity
- Maintain integrity of ecosystem

Fish and Wildlife Habitats

- Provide breeding and feeding grounds
- Create and enhance waterfowl habitat
- Protect habitats for rare/endangered species

Societal Resources: resources and functions that directly benefit human society

Harvest of wild and cultivated products

- Enhance agricultural lands
- Provide sites for aquaculture
- Restore and enhance forest lands

Recreational Opportunities

- Provide areas for active and passive uses
- Provide open space
- Provide aesthetic pleasure

Areas for Scientific Study and Outdoor Education

- Contain cultural resources (historic and archaeological sites)
- Provide opportunities for environmental and other studies

Excerpted from Appendix A of *A Unified National Program for Floodplain Management*, 1994, Federal Interagency Floodplain Management Task Force, FEMA-248.

7. The flood warning system: Information on warning procedures, signals used, warning time, what radio station to tune to, and similar data should be disseminated. These items must be covered if the community is applying for credit for emergency warning dissemination under Activity 610 (Flood Warning Program). No credit is awarded if the community does not have a flood warning system.
8. Floodplain development permit requirements: The outreach project should explain that all developments in the floodplain (not just construction of buildings) need local permits. People should be advised to contact the community's regulatory department before they build, fill, or otherwise develop. They should also be told how to report illegal floodplain development.
9. The substantial improvement/damage requirements: The National Flood Insurance Program (NFIP) requires that if the cost of reconstruction, rehabilitation, addition, or other improvements to a building equals or exceeds 50% of the building's market value, then the building must meet the same construction requirements as a new building. Substantially damaged buildings must also be brought up to the same standards (e.g., a residence damaged so that the cost of repairs equals or exceeds 50% of the building's value before it was damaged must be elevated above the base flood elevation). The outreach project should summarize the requirement (which is in the community's floodplain management regulations) and the local procedures for enforcing it.
10. Drainage system maintenance: The project should discuss regulations against dumping in channels, how to report violations, and why it is important to maintain the drainage system. These items must be covered if the community wants full credit for its stream dumping regulations under Activity 540 (Drainage System Maintenance).

a. Outreach Projects to the Community (OPC)

The credit points are based on the topics covered in an outreach project that is sent to all residents of the community. If all 10 topics are adequately discussed, a total of 60 points is provided. The points vary by topic:

8 points

The local flood hazard
Flood safety
Flood insurance
Property protection measures
Natural and beneficial functions

4 points

Map of the local flood hazard
Flood warning system
Floodplain development permit requirements
Substantial improvement/damage requirements
Drainage system maintenance

b. Outreach Projects to Floodplain Residents (OPF)

The credit points are based on the topics covered in an outreach project that is sent to all properties in the floodplain. If all 10 topics are adequately discussed, a total of 130 points is provided. The points vary by topic:

17 points

The local flood hazard
Flood safety
Flood insurance
Property protection measures
Natural and beneficial functions

9 points

Map of the local flood hazard
Flood warning system
Floodplain development permit requirements
Substantial improvement/damage requirements
Drainage system maintenance

As stated on page 3, an OPF project **MUST** clearly explain that the recipient's property is subject to flooding with introductory language such as "your property is in or near the floodplain." An OPF project receives the greatest credit because research has shown it to be the most effective in motivating people to take steps to insure or protect their properties.

c. Additional Outreach Projects (OPA)

Two points are provided for each topic covered in an additional outreach project. Usually these projects have shorter messages, provide less information, and have a "hit or miss" approach to reaching people (e.g., whoever strolls by a booth at the county fair or happens to watch a cable television show). Because of these factors, the score for an OPA project is lower than for the previous two.

The maximum points possible for covering all 10 topics in one project is $2 \times 10 = 20$. However, the CRS will credit up to three OPA projects, so the total possible is $20 \times 3 = 60$. If there is more than one project, they are marked as OPA1, OPA2, and OPA3.

d. Outreach projects pursuant to a public information program strategy (OPS)

An OPS is an alternative to OPA credit. A community can either score its additional projects individually under the OPA approach and obtain a maximum possible of 60 points or it can prepare a public information program strategy document. If it does the latter and implements the additional projects, the credit for OPS is 100 points.

There is no credit under OPS if:

- None of the recommended projects are implemented.
- The only projects implemented are credited as OPC and/or OPF projects. Although the strategy should include a discussion of the community's OPC and OPF projects (if any), OPS credit is dependent on implementing additional outreach projects.

- The community does not provide the evaluation report with the annual CRS recertification.

As long as at least one of the recommended additional outreach projects is implemented, OPS credit is provided. However, the annual evaluation report must identify those projects not implemented, explain why they were not, and recommend what to do about it. The strategy team may determine that the project cannot or should not be implemented, in which case the project should be dropped from the strategy. An example of a simplified annual evaluation report is on page 7.

332 Credit Calculation

This section of the *Coordinator's Manual* adds the points for all the credited projects. There are two possible formulas, depending on whether the community opted for OPA or OPS:

a. $c330 = OPC + OPF + OPA1 + OPA2 + OPA3$

OR

b. $c330 = OPC + OPF + OPS$

A scoring example is in the *CRS Coordinator's Manual*. The completed calculations on an activity worksheet are shown on pages 330-19 and 330-20 of the *Manual*.

333 Credit Documentation

For a community's first application for a CRS classification, worksheet page 17 of the *CRS Application* is submitted along with the documentation described below. A blank copy of this worksheet page is found at the end of the *CRS Application*.

Subsequent requests for credit are called modifications. Modifications include the two activity worksheets AW-330 and AW-331 along with the documentation described below. These worksheets are also used by the ISO/CRS Specialist to calculate the community's verified credit. A community may also opt to use the *CRS Calculation Software*, which calculates the points and prints the worksheets.

The *CRS Application*, the software, and the paper activity worksheets can be ordered using the form in Appendix E of the *Coordinator's Manual* (see also the inside of the front cover of this publication).

Section 333 on the *CRS Application* worksheet page 17 and on AW-331 is a checklist for the documentation listed below. These items are needed to confirm that the community's program meets the CRS credit criteria. If there is more than one item, each should be labeled as "Attachment 1," etc., for easy reference.

a. Project Materials

A copy of the brochure, notice, article, flyer, and other materials used in the outreach projects must be attached to the worksheet. The topics covered must be designated in the margins. The examples in this publication show how the margins should be marked. For projects such as public meetings, speeches, videos, displays, etc., a memo describing the project and the topics covered is sufficient.

b. Strategy Document

If the community is requesting credit for outreach projects pursuant to a public information program strategy under Section 331.d, the documentation must include a copy of the strategy document.

The community must also document that the strategy is being implemented. This can be in the form of a resolution of adoption or a letter or memo from the responsible party (e.g., the city manager or public information officer) stating that the projects recommended by the strategy are being implemented and that the strategy team will conduct the annual evaluation.

c. Frequency

Documentation that shows when the projects are undertaken also must be attached to the worksheet. In some cases, this information is in the project materials (e.g., a newsletter that says “Annual Hurricane Awareness Issue”). Otherwise, a memo that describes the project and how and when it is distributed is sufficient.

d. Recertification

Copies of each year’s projects are included with the community’s annual recertification. In the case of a mailer, flyer or article, a copy should be submitted. In the case of an outreach project that involves a public meeting, display, demonstration, etc., a memo to the files or a newspaper article describing how the project was conducted should be submitted.

e. Annual Evaluation Report

If the community is receiving credit for outreach projects pursuant to a public information program strategy under Section 331.d, the annual recertification submittal must include a copy of the annual evaluation of the strategy. This can be a separate report or on activity worksheet AW-332. If a separate report is submitted, it must cover the same topics as AW-332. An example of a completed AW-332 is on page 7.

334 For More Information

An outreach project should not be a one-time-only effort conducted solely for CRS credit. It should be part of an annual flood or disaster awareness campaign coordinated with the local public information officer.

Some state and local emergency management offices have training courses on public information campaigns. FEMA's Emergency Management Institute (EMI) offers one-week basic and advanced public information courses. EMI courses are tuition free and travel stipends can often be obtained. For more information, contact your state emergency management agency's training officer.

References on most of the 10 topics can be found in Section 354 on the Flood Protection Library in the *Coordinator's Manual* or on pages 23 and 53 of the *CRS Application*.

Flyers and stuffers on flood insurance are available through the National Flood Insurance Program. Contact a local insurance agent who sells flood insurance for examples and order forms, or obtain them from

FEMA Distribution Center
P.O. Box 2010
Jessup, MD 20794-2012
1-800-480-2520
Fax: (301) 362-5335

The following are available free from FEMA Publications by calling 1-800-480-3520.

Hurricane Awareness Workbook, FEMA-86, includes references to organizations with experience in conducting hurricane awareness campaigns and examples of local projects.

Marketing Earthquake Preparedness, FEMA-112, provides guidance on developing a local hazards preparedness campaign.

Homeowner Floodproofing Behavior is a summary of research findings on post-flood public information activities that encouraged people to protect themselves from the next flood.

Answers to Questions about Substantially Damaged Buildings, FEMA-213, explains the requirements of and offers guidelines on the NFIP's substantial damage rules.

Open houses are public meetings that combine presentations, publications, and discussions with government officials, experienced flood protection contractors, flood insurance agents, etc. (see example, page 44). *How to Conduct a Floodproofing Open House* provides step-by-step instructions on this form of outreach project. It is available for \$7.00 from the Illinois Association for Floodplain and Stormwater Management, 153 Nanti, Park Forest, IL 60466.

PROJECT GUIDELINES

The purpose of an outreach project is to make residents aware of the local flood hazard and ways they can protect themselves. A national model that is copied verbatim cannot describe the local hazard or locally appropriate protection measures in a way that will get the attention of readers in every community. For this reason, the CRS has avoided preparing a model outreach project.

The CRS does provide two sample outreach projects and good examples from actual CRS submittals. The first sample is an outreach project to the community (OPC) in Figure 330-1 in the *CRS Coordinator's Manual* and on pages 18-19 of the *CRS Application*. It is for the fictitious community of Floodville.

The second one, an outreach project to floodplain properties (OPF), is for the fictitious community of Planton. It was designed to meet all of the scoring criteria for Activity 330. It starts on page 18. Additional examples of various types of projects are provided on pages 29–48.

Guidance

The following guidance is based on findings from local experiences, CRS applications, and several research projects. These points should be considered when designing outreach projects or preparing a public information program strategy.

1. A comprehensive program that reinforces a message from several sources is more productive.
2. An outreach project to floodplain residents (OPF) must tell the readers that their properties are floodprone.
3. The message must be clear and unambiguous. It should be written to be understood by the lay person.
4. Using the second person (“you are in the floodplain”) is often simpler and more effective than the less personal third person (“recipients of this letter are in a floodplain”).
5. To receive credit for covering the property protection topic, the message must clearly articulate the most desirable measures. Protection measures must be affordable and appropriate for the community’s flood hazard and building types. For example, if the local problem is flooded basements, the project should not cover elevation or relocation measures. Figure 530-3 in the *Coordinator's Manual* discusses where retrofitting measures are appropriate.
6. As no property protection measure is foolproof, especially against higher, less frequent floods, flood insurance should always be recommended.
7. The projects may be conducted by any agency or organization. For example, the community’s newsletter could qualify for OPC, a neighborhood organization could distribute OPF notices,

the county emergency manager could conduct a flood awareness week (OPA1), and the building trades association could sponsor a floodproofing open house (OPA2).

8. Credit can be obtained for distributing handbooks or manuals on flood protection. Several are available free as listed in Section 354 of the *CRS Coordinator's Manual* and on pages 23 and 53 of the *CRS Application*. However, many of these cover items that are not appropriate for every community's flood hazard or building types. The information would be more pertinent if a community "cut and pasted" only the appropriate sections of a national or state manual and reproduced them as a local publication. It should have an appropriately pertinent cover, such as a picture of a flooded local landmark.
9. OPC and OPF projects are for the general public. The CRS does not credit OPC or OPF documents sent only to city employees, insurance agents, or bankers. However, OPA projects may be directed toward special audiences. For example, OPA credit can be provided for a training session for real estate agents on the community's flood hazards and map information service.

Common Problems

More than 60% of the CRS communities are receiving credit for Activity 330. Many of them have copied other documents, including publications by FEMA and examples printed in previous *Coordinator's Manuals*. Unfortunately, many of these documents were not written with Activity 330 in mind and they do not contain all of the items needed for CRS credit. Here are the more common problems:

1. There must be more than a discussion of the statistical risk of flooding to receive credit for covering the local flood hazard topic. Some brochures include only a discussion of the odds of a 100-year flood as the description of the flood hazard. This language does not convey the actual LOCAL flood hazard. The lay reader often sees a 25% chance over 30 years as remote and will not feel that the threat is severe enough to warrant action. The missing factor is local information. There should also be a discussion of past floods and the damage they caused.

Good examples of these items are included in the Planton and Kingsport projects. The Boulder flyer includes a map and the names of the sources of flooding. While it discusses the statistical risk of flooding, it has additional information that localizes the description of the hazard.

2. Many communities have distributed or copied some of the brochures put out by the National Flood Insurance Program. These are excellent documents, but many of them were written specifically for people who already have flood insurance. One popular brochure, "In the Event of a Flood," describes how to request a flood insurance claim. Although it has some useful suggestions on flood safety and clean up, it cannot be credited under Activity 330 as a discussion of flood insurance or property protection.
3. The property protection topic must include specific permanent protection measures. Some brochures simply advise owners to take protection measures without identifying what can be

done. Saying simply, “Consider floodproofing options (structural changes should be designed by a professional engineer),” is not creditable.

Some outreach projects focus only on emergency actions, i.e., things to do after a flood or hurricane warning has been issued. Some are taken from hurricane preparedness materials and cover protection only from wind damage. These cannot receive full credit under the property protection topic because they do not discuss permanent changes that can be made to protect a property from flooding.

4. Many brochures include useful, but uncredited, topics. Many communities have had brochures or flyers made for other purposes and submitted them for CRS credit. They include topics that are not credited under Activity 330, such as discussions of the CRS, the community’s participation in the National Flood Insurance Program, flood control projects, why stormwater utility rates are increasing, and the local budget. None of these is creditable under Activity 330 because they do not cover any of the 10 topics.

It is important to note that these uncredited topics are appropriate for outreach projects. Research has shown that people are more likely to respond favorably to suggestions that they floodproof or buy insurance if they know the local government is doing all it can to reduce flooding. This is done in the Planton example. Therefore, the CRS encourages outreach projects that discuss local flood control projects, drainage improvement efforts, and the city budget. However, if those are the only topics covered, there is no credit under Activity 330.

5. Notices of government meetings are not credited. Some communities have submitted notices of public hearings on ordinance amendments and meetings or training programs for community staff. Unless the public meetings are advertised as including informative sessions, they would not be credited. Credit was provided for one community’s public meeting on a revision to a floodplain management ordinance because it included background discussions on floodplain development regulations. It received two points for an OPA project that covered one topic.

OPF Brochure: Planton

Planton is a fictitious city used for CRS examples. It is described in more detail in *Example Plans*, which is available free from the office listed on the inside of the front cover. Planton has three flood problems, a large river, a smaller creek, and a local drainage problem.

Planton’s “Flood Protection Plan” recommended that the City prepare a brochure and send it to property owners every spring. When it came time to implement this recommendation, the City opted to prepare a simple six-page brochure with a different cover letter for each of its three flood problem areas. The cover letter is on page 21.

The brochure is on pages 23–28. The margins have been marked like a CRS application to show where the topics appear. The brochure is in a word processing program so each year’s mailing can be easily changed to include information on any floods that may have occurred and on new programs that might be available.

This OPF sample is for the Little Creek floodplain, Planton's largest flood problem area. The cover letter clearly states that the recipient is in a floodplain. This project covers the 10 topics as follows:

1. The local flood hazard: The description of the hazard is localized in the cover letter. The source of flooding is named. The cover letter describes recent floods, not a vague concept of possible 100-year flooding.
2. Flood safety: Many useful safety precautions are listed on the brochure's back cover.
3. Flood insurance: A section devoted to this topic notes that standard property insurance does not cover flooding and that anyone in town can buy flood insurance from their insurance agent. Structural and contents coverage are also discussed. Additional information on private basement flooding insurance is included because that is one of the major flood problems in the community.
4. Property protection measures: Appropriate permanent and emergency measures are covered in the section on "Protecting Yourself." This section plus the section on City Flood Services are used as the City's publicity for Activity 360 (Flood Protection Assistance).
5. Natural and beneficial floodplain functions: Local natural areas are identified and the brochure discusses the need to protect such areas.
6. A map of the local flood hazard: The map on page 23 conveys the extent of local flooding. People can get a general idea of whether they are in or out of the flood hazard area.
7. The flood warning system: When this brochure was prepared, Planton did not have a warning program, so there is no credit for this topic.
8. Floodplain development permit requirements: The Construction Requirements section discusses the requirement for permits. The location and telephone number of the Building Department are included.
9. The substantial improvement requirements: This is also discussed in the Construction Requirements section.
10. Drainage system maintenance: The need for maintenance and reporting violations is discussed in the section on Stream Maintenance. The location and telephone number of the Public Works Department are provided.

This brochure adequately covers nine of the 10 topics, so Planton's score for OPF is:

<u>Topic</u>	<u>Points</u>
The local flood hazard	17
Flood safety	17
Flood insurance	17
Property protection measures	17
Natural and beneficial functions	17
Map of the local flood hazard	9
Flood warning system	0
Floodplain development permit requirements	9
Substantial improvement/damage requirements	9
Drainage system maintenance	<u>9</u>
	121

Planton's brochure is also acceptable as the publicity for Activity 360 (Flood Protection Assistance). The services are discussed in various sections and the locations and telephone numbers of the offices that provide assistance are provided.

City of Planton
"“City of Progress in the Country”

Leo Lepetomaine, Mayor

March 10, 1999

Dear Little Creek Floodplain Resident:

YOU are in a floodplain. This letter is being sent to all residents and businesses that have been flooded or are in a mapped floodplain. The City of Planton wants to make you aware of the flood hazard to your property, what the City is doing about flooding, and some things you can do in addition to the City's efforts.

Flooding is a real hazard in your area of town. In the Little Creek floodplain, flood waters can move as fast as six feet per second. At that rate, water only one foot deep can knock a man off his feet. Water two feet deep can wash a car off the road.

Little Creek flooded in June 1985, March 1990, and August 1995. The worst of these floods was in March 1990 when 120 homes and businesses and both the Front and Third Street bridges went under water.

Your property may be high enough that it was not flooded by these recent floods. However, it can still be flooded in the future because the next flood could be worse. You are in the floodplain as mapped by the Federal Emergency Management Agency. The odds are that someday Little Creek will flood your property.

The City of Planton adopted its Flood Protection Plan in 1995. It identifies what we are doing to prevent and reduce flood damage. Last year we spent over \$100,000 on buying floodprone properties, cleaning the streams, inspecting new construction, and doing other flood-related programs.

Our work will help keep the flood problem from getting worse. However, because of the cost and the type of flood problems we face, we will not be able to stop Little Creek from flooding. Therefore, we recommend that you read and keep the enclosed brochure.

Flood Hazard

Little Creek Floodplain Residents
Page 2

If you have any questions on your flood hazard or flood protection, please call Bill D. Best, City Planner, at 555-1234.

Sincerely,

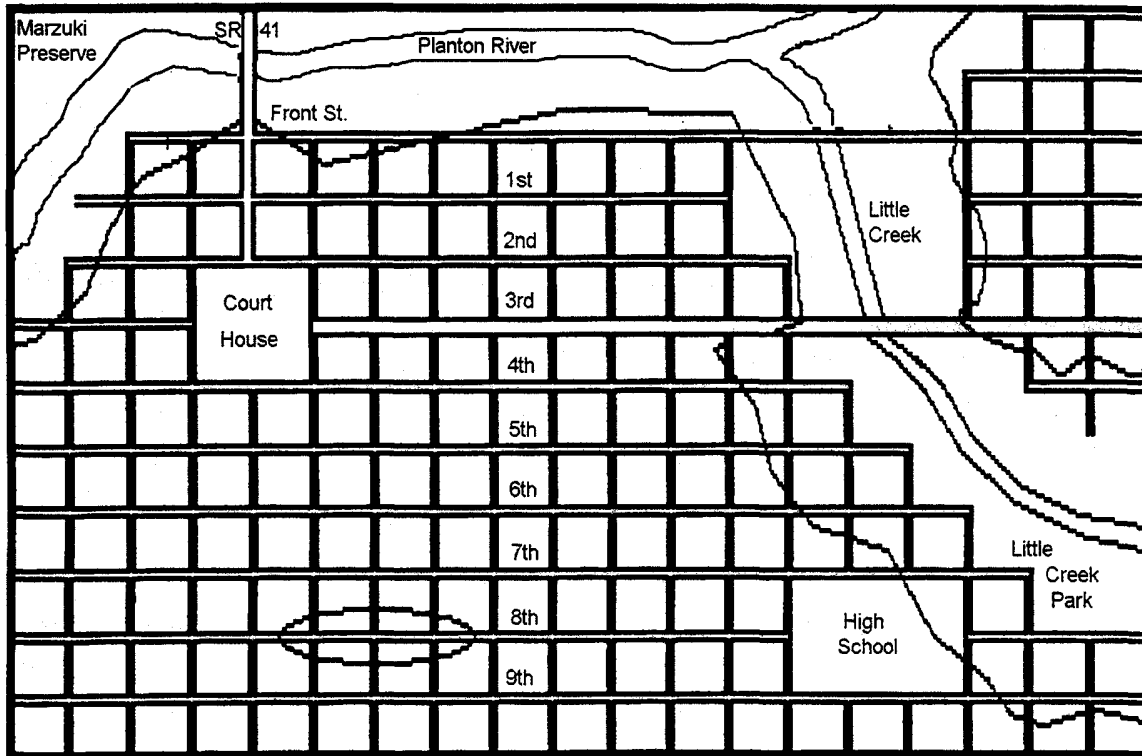
Leo Lepetomaine

Leo Lepetomaine
Mayor

Enclosure

Flood Protection

The Problem: Planton is subject to flooding from three sources: the Planton River, Little Creek and a drainage problem on 8th Street. The approximate boundaries of these flood problem areas are shown on the map below. This map is for general information only. To find out where your property is in relation to the floodplain, contact the Building Department at City Hall.



What We Are Doing: Planton's *Flood Protection Plan* is at the Public Library and the City Planner's office in City Hall. It was prepared by a special flood planning committee that included representatives of floodplain residents and businesses. After a year's work, the committee recommended 10 projects that will reduce flood damage and improve the community.

We have made progress on most of these projects. The best known is the Little Creek pathway, which provides both flood protection and recreation. We are buying more land and easements to extend the greenway. If you are interested in selling your lot or an easement for the greenway or for access for stream maintenance, contact the City Planner.

City Flood Services

Flood maps and flood protection references:
Planton Public Library

The following City Hall offices can be reached by calling the City Hall operator at 555-1234.

Construction in the floodplain:
Building Department

Stream dumping and obstructions:
Public Works Department

Flood protection programs and
floodproofing advice: City Planner

360 Publicity

We have also formalized our stream maintenance procedures, provided technical assistance to floodprone property owners, and improved our floodplain and building codes. We have started work with other agencies on a flood warning program, a flood preparedness plan, and a plan to control runoff from new developments in the watershed. This brochure is another product recommended by the plan.

Each year the flood planning committee meets to review progress and recommend the next year's flood projects. You are welcome to attend these meetings. Contact the City Planner's office for more information.

What You Can Do: You can implement one or more flood protection measures, purchase flood insurance, and help the City in its flood protection activities. This brochure provides more details on these measures. Read this brochure carefully and keep it handy in case of a flood.

Stream Maintenance: Do not dump or throw anything into the ditches or streams. Dumping in our ditches and streams is a violation of Planton City Ordinance 89-12. A plugged channel cannot carry water and when it rains, the water has to go somewhere.

If you see dumping or debris in the ditches or streams, contact the Public Works Department at 555-1234. The debris may increase flooding on your property.

Every piece of trash can contribute to flooding. Even grass clippings and branches can accumulate and plug channels. If your property is next to a ditch or stream, please do your part and keep the banks clear of brush and debris. The City has a new stream maintenance program that inspects the channels regularly and can help you remove major blockages such as downed trees.

Construction Requirements: Always check with the Building Department before you build on, alter, regrade, or fill on your property. A permit is needed to ensure that projects do not cause problems on other properties.

If you see building or filling without a City permit sign posted, contact the Building Department at 555-1234. The project may increase flooding on your property.

New buildings in the floodplain must be protected from flood damage. Our building code requires that new residential buildings must be elevated two feet above the base or "100-year" flood. This is the flood shown on the map on the previous page. New non-residential buildings must be elevated or floodproofed to a level of two feet above the base flood. No construction, including filling, can be allowed in the mapped floodway of the Planton River or Little Creek without an engineering analysis that proves that the project will not increase flood damage elsewhere.

The ordinance also requires that all substantial improvements to a building be treated as a new building. A substantial improvement is when the value of an addition, alteration, repair or reconstruction project exceeds 50% of the value of the existing building. In the case of an addition, only the addition must be protected. In the case of an improvement to the original building, the entire building must be protected.

For example, if a house is flooded, has a fire, is hit by a tornado, or is otherwise damaged so that the cost of repairs is more than 50% of the value of the building before the damage, then the house must be elevated to two feet above the base flood level. The Building Department and City Planner have information on sources of financial assistance to help meet this requirement.

Protecting Yourself: Rather than wait for a code requirement, you can act now to protect your property from flood damage. The first thing is to know your flood hazard. Check with the City Planner and find out the following:

- How high would the 100-year flood be on your building?
- Will the flood go only in your basement or will it be over your first floor?
- How much warning time can you expect?
- How will you get the flood warning?
- Will your access or evacuation route be blocked by flooded streets?

Ask the City Planner for a free copy of *Repairing Your Flooded Home*, FEMA-234. Next, talk to the Planner about protecting your property. Describe your lot and your building. He may recommend that you look into regrading your lot or retrofitting your building. "Retrofitting" means altering your building to eliminate or reduce flood damage. Retrofitting measures include:

- Elevating the building so that flood waters do not enter or reach any damageable portions of it,
- Constructing barriers out of fill or concrete between the building and flood waters,
- "Dry floodproofing" to make the building walls and floor watertight so water does not enter,
- "Wet floodproofing" to modify the structure and relocate the contents so that when flood waters enter the building there is little or no damage, and
- Preventing basement flooding from sewer backup or sump pump failure.

There are several good references on retrofitting in the Planton Public Library. Start with Step 8 in *Repairing Your Flooded Home* to get an idea about retrofitting and floodproofing. Once you have an idea about what would be appropriate for your situation, check *Homeowner's Guide to*

Important note: Any alteration to your building or land requires a permit from the Building Department. Even regrading or filling in the floodplain requires a permit.

Retrofitting: Six Ways to Protect Your House from Flooding, FEMA-312, for more details. *Flood Proofing: How to Evaluate Your Options* can help you decide what is the best for your flooding, building and financial situation. The City Planner can also help.

Flood Preparedness: There are many things that can be done to prepare for the next flood. Here are some things to check.

- Know the official warning and evacuation procedures.
- Read the safety instructions on the back cover of this brochure.
- Talk to your insurance agent about your coverage. Check out flood and sewer backup insurance.
- Prepare a list of emergency telephone numbers, including your insurance agent. Make copies and keep them in your car, at work, and at a friend's house.
- Assemble the supplies you will need for cleanup and recovery. Keep them in a safe place. A list of such supplies is on pages 4-5 of *Repairing Your Flooded Home*.
- Make a record of all your personal property. Go through your house room by room and record household inventories. Take photographs or videotapes. Inventory forms are available free from most insurance companies or you can make your own.
- Put photocopies of inventory records, insurance policies, deeds, automobile titles, wills, telephone numbers, bank and credit card account numbers, and other valuable papers at a location away from your house, such as a safe deposit box.
- Prepare a flood response plan that will help you think through all the details that demand attention after a flood watch or warning is issued. Writing it down will help you remember everything, which is especially important when everyone is in a hurry and excited because a flood is coming.
- Identify two places where family members can meet if you are split up—one place in the neighborhood and another place that is sure to be high and dry and out of the flood area.
- If you know a flood is coming, you should shut off the gas and electricity and move valuable contents upstairs. If you're not sure how to turn off your electricity and gas, talk to the Building Department.

Flood Insurance:

Flood insurance is highly recommended, especially if you don't retrofit. If you did retrofit, it is still recommended in case the flood exceeds your flood protection design. An advantage of insurance is that your property is covered as long as the policy is in force, even when you're not home to implement your flood response plan. Most standard property insurance policies do not cover a property for flood damage.

The City of Planton participates in the National Flood Insurance Program. Local insurance agents can sell a flood separate insurance policy under rules and rates set by the Federal government. Any agent can sell a policy and all agents must charge the same rates. Your rates will not change just because you file a damage claim; they are set on a national basis.

Any walled and roofed structure can be covered by a flood insurance policy. Detached garages and accessory buildings are covered under the policy for the lot's main building. Separate coverage can be obtained for the building's structure and for its contents (except for money, valuable papers, and the like). The structure generally includes everything that stays with a house when it is sold, including the furnace, cabinets, built-in appliances, and wall-to-wall carpeting. There is no coverage for things outside the house, like the driveway and landscaping. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building.

Some people have purchased flood insurance because it was required by the bank when they got a mortgage or home improvement loan. Usually these policies just cover the building's structure and not the contents. During the kind of flooding that happens in Planton, there is usually more damage to the furniture and contents than there is to the structure.

Don't wait for the next flood to buy insurance protection. There is a five-day waiting period before National Flood Insurance coverage takes effect. Contact your insurance agent for more information on rates and coverage.

Several insurance companies have sump pump failure or sewer backup coverage that can be added to a homeowner's insurance policy. Each company has different amounts of coverage, exclusions, deductibles, and arrangements. Most are riders that cost extra. Most exclude damage from surface flooding that would be covered by an NFIP policy.

Each company has its own deductibles and exclusions. Some may cancel the coverage or increase the premium if the policy holder collects on a claim. The cost varies from nothing to up to about \$75 for a rider on the homeowner's insurance premium.

Natural Areas: Under natural conditions, a flood causes little or no damage. Nature ensures that floodplain flora and fauna can survive the more frequent inundation. This is the case in the Marzuki Preserve across the Planton River from the downtown. This area has been identified by the Department of Natural Resources as one of the state's few remaining floodplain bottomlands still in its natural state.

The Marzuki Preserve and other natural areas help reduce our flood damage by allowing flood waters to spread over a large area. This reduces flood velocities and provides flood storage to reduce peak flows downstream. Natural floodplains reduce wind and wave impacts and their vegetation stabilizes soils during flooding.

It is our job to help preserve natural areas in the floodplain. We can do this by following the notices in the boxes on stream maintenance and construction in the floodplain.

Natural + Beneficial

FLOOD SAFETY

Do not walk through flowing water. Drowning is the number one cause of flood deaths. Currents can be deceptive; six inches of moving water can knock you off your feet. Use a pole or stick to ensure that the ground is still there before you go through an area where the water is not flowing.

Do not drive through a flooded area. More people drown in their cars than anywhere else. Don't drive around road barriers; the road or bridge may be washed out.

Stay away from power lines and electrical wires. The number two flood killer after drowning is electrocution. Electrical current can travel through water. Report downed power lines to the Power Company or the City's Emergency Management office.

Have your electricity turned off by the Power Company. Some appliances, such as television sets, keep electrical charges even after they have been unplugged. Don't use appliances or motors that have gotten wet unless they have been taken apart, cleaned, and dried.

Look out for animals, especially snakes. Small animals that have been flooded out of their homes may seek shelter in yours. Use a pole or stick to poke and turn things over and scare away small animals.

Look before you step. After a flood, the ground and floors are covered with debris including broken bottles and nails. Floors and stairs that have been covered with mud can be very slippery.

Be alert for gas leaks. Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns, or open flames unless you know the gas has been turned off and the area has been ventilated.

Carbon monoxide exhaust kills. Use a generator or other gasoline-powered machine outdoors. The same goes for camping stoves. Charcoal fumes are especially deadly cook with charcoal outdoors.

Clean everything that got wet. Flood waters have picked up sewage and chemicals from roads, farms, factories, and storage buildings. Spoiled food, flooded cosmetics, and medicine can be health hazards. When in doubt, throw them out.

Take good care of yourself. Recovering from a flood is a big job. It is tough on both the body and the spirit and the effects a disaster has on you and your family may last a long time. Read Step 1 in Repairing Your Flooded Home on how to recognize and care for anxiety, stress, and fatigue.

COMMUNITY EXAMPLES

OPC Project: Kingsport

Kingsport, Tennessee, submitted two tri-fold pamphlets for credit under Activity 330. The pamphlets are on the following pages as OPC examples. Together, they cover seven topics. The pamphlets have been marked to show where these topics appear:

The flood hazard: The History of Flooding section provides data on the local hazard and past floods. It also notes that because of floodplain development, a repeat of the 1927 flood on one creek would be worse today. 8 points.

Flood safety: This topic is covered in the section with the same name. 8 points.

Flood insurance: This topic is covered in the section with the same name. However, the average annual premium for a flood insurance policy is now approximately \$400. 8 points.

Property protection measures: This topic is covered in the section with the same name. 8 points.

The flood warning system: This topic is covered in the section with the same name. Appropriate local radio and television stations are listed. It is recommended that AM and FM frequencies and TV channels be included with the names of the stations. 4 points.

Floodplain development permit requirements: The second brochure covers this topic under the section on floodplain development regulations. 4 points.

Drainage system maintenance: The second brochure provides an excellent discussion of drainage system maintenance. 4 points.

The two pamphlets cover seven topics. Four of them are worth 8 points and three are worth 4 points. The score for OPC would be $OPC = (4 \times 8) + (3 \times 4) = 32 + 12 = 44$.

It should be noted that Kingsport's pamphlets are in the third person and they include some technical terms. The radio and TV stations that issue flood warnings are listed by call sign but their frequencies are not included, so some readers may not know how to tune them in.

The authors of outreach projects should put themselves in the position of their readers. If you received a brochure in the mail, what would make you want to read it? What would make you think it applied to you? What would motivate you to buy insurance or protect your property?

The purpose of this pamphlet is to inform residents and property owners of the presence of flood hazards in Kingsport, and suggest possible actions which may be taken to protect persons and property.

HISTORY OF FLOODING IN KINGSPORT

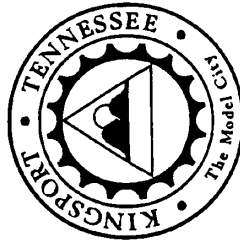
Locally, the Holston River, Reedy Creek, and Mad Branch have a history of flooding. The flood of May 30, 1927 on Reedy Creek was the highest known to local residents in the Kingsport area. It had an estimated discharge of 11,000 cfs (cubic feet per second), resulting in a flood which was six to eight feet above the stream bed. Another major flood in 1963 left Gibson Mill Road impassable, and damaged several businesses on Sullivan Street. The last major flood of Reedy Creek occurred on March 30, 1975, at the same location as the 1927 flood, and had a peak discharge of 2,950 cfs.

The largest floods recorded for the South Fork Holston River occurred in 1867 and 1901, both of which had flood waters which covered Long Island by as much as seven feet. The greatest flood since incorporation of the City (1917) occurred in 1940, when 126 homes on Long Island were flooded. These floods occurred prior to closure of the Watauga and South Fork Holston Dams in 1948 and 1950, respectively. The largest flood since closure of the upstream reservoirs occurred on March 12, 1963.

Over the years, earth fills have been made in the flood plain which obstruct the flow of water and cause floods to be higher than would otherwise be expected. For example, if the May, 1927 Reedy Creek flood occurred today, the flood waters would be at least two feet higher than what was experienced.

Flood Hazard

FLOODS AND FLOOD INSURANCE



Kingsport Planning Department
City of Kingsport
City Hall
225 West Center Street
Kingsport, TN 37660
Phone (615) 229-9485
Fax: (615) 229-9350

FLOOD WARNING SYSTEM

A flood warning system, such as is present today, was not in effect when these floods occurred. A Sullivan County Multi-Jurisdictional Emergency Operations Plan (EOP) was developed to prepare for a variety of disasters, including flooding. Flood watches (when conditions are right for flooding) and flood warnings (flooding is imminent) will be issued by T.V. (WKPT) and radio (WKPT AM/WTFM, WXBQ/WFHG, and NOAA).

Residents in flood prone areas will also be warned of an actual emergency condition by the sounding of a steady siren tone lasting three minutes. This signal will be provided by primary siren sites in Kingsport. If needed, supplemental siren coverage can be provided by industrial organizations and fire and law enforcement mobile units. When these signals are sounded, residents should turn to the television and radio stations listed above for information.

FLOOD SAFETY

There are several actions residents of flood hazard areas can take to decrease the potential of injury due to flooding.

1. Know the flood warning procedures.
2. Do not attempt to cross a flowing stream where water is above your knees.
3. Keep children away from flood waters, ditches, culverts, and storm drains.
4. If your vehicle stalls in high water, abandon it immediately and seek higher ground.
5. Evacuate the flood hazard area in times of impending flood or when advised to do so by the police or fire department.

6. Cut off all electric circuits at the fuse panel or disconnect switches. If this is not possible, turn off or disconnect all electrical appliances. Shut off the water services and gas valves in your home.

FLOOD INSURANCE

STANDARD HOMEOWNERS INSURANCE POLICIES DO NOT COVER LOSSES DUE TO FLOODS. However, Kingsport is a participant in the National Flood Insurance Program, which makes it possible for Kingsport property owners to obtain federally backed flood insurance. This insurance is available to any owner of insurable property (a building or its contents) in Kingsport. Tenants may also insure their personal property against flood loss.

The average annual premium for this insurance is \$250. The actual cost will vary depending upon the amount of coverage and the degree of flood hazard. We urge persons who live or own property in flood hazard areas to purchase flood insurance to protect themselves from losses due to flooding. This insurance is required in certain instances, such as the purchase of a home with a federally backed mortgage.

PROPERTY PROTECTION MEASURES

There are various actions which can be taken to floodproof structures. Electrical panel boxes, furnaces, water heaters, and washers/dryers should be elevated or relocated to a location less likely to be flooded. Basement floor drains and interior and exterior backwater valves can be installed, and interior floodwalls can be placed around utilities.

If flooding is likely, and time permits, move essential items and furniture to the upper floors of your home. Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing. This action will help minimize the amount of damage caused by floodwaters.

FLOOD HAZARD AREAS

Two types of flood hazard areas are designated in Kingsport: the floodway and the flood fringe. To determine if you live in, or own property in, a flood hazard district, contact the Kingsport Building Department at 229-9393.

There are other pamphlets available which discuss items of interest to residents of flood hazard areas. These may be obtained at the Kingsport Planning Department at no charge. Information is also available in the Kingsport Public Library, located at 400 Broad Street.

320...ity
Publicity

This pamphlet is an informational publication of the City of Kingsport Planning Department, Fred M. Crowell, Director. The principal author of this document was Carolyn M. Ashburn, Planner II. Inquiries regarding this document should be directed to the Planning Department, located in City Hall, 225 West Center Street, Kingsport, TN 37660.

The purpose of this pamphlet is to provide information on the development of floodplains and maintenance of drainage systems which flow into the creeks and rivers within these flood hazard areas.

FLOODPLAIN DEVELOPMENT REGULATIONS

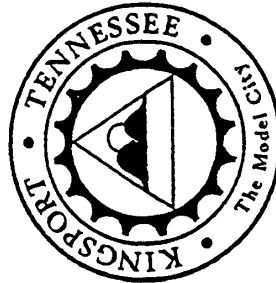
The City of Kingsport has adopted, as part of the *Kingsport Zoning Ordinance*, regulations on development in flood districts. The purpose of these regulations is to control the alteration of natural floodplains and stream channels; prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas; restrict or prohibit uses which may result in damaging increases in erosion or in flood heights or velocities; and to control filling, grading, dredging, and other development which may increase flood damages.

These regulations specify two types of flood hazard areas -- the floodway and the flood fringe.

Uses which have a low flood damage potential and do not restrict flood flows shall be permitted in the floodway, provided they are not prohibited by another ordinance. These uses shall not require structures, fill, dumping of material or waste, or storage of materials or equipment. The most common uses of the floodway are agricultural or recreational in nature, and parking/lawn areas of residences.

Flood fringe districts permit the same type uses as floodway districts. The construction of structures, such as residences, is

DEVELOPMENT IN FLOOD HAZARD AREAS



Kingsport Planning Department
City of Kingsport
City Hall
225 West Center Street
Kingsport, TN 37660
Phone: (615) 229-9485
Fax: (615) 229-9350

also permitted, provided the lowest floor of any residential structure is no lower than one foot above the base flood elevation.

It is very important to contact the Kingsport Building Department if any work is to be performed in flood hazard areas. This is necessary as the regulations are extensive, and development permits are required for construction or substantial improvements in the floodway or flood fringe.

MAINTENANCE OF DRAINAGE SYSTEMS

Kingsport has a storm drainage system which is composed of both open and closed segments. The open sections are drainage swales/ditches which are utilized to carry storm waters away from homes to drainage areas, such as creeks or rivers. The closed system is comprised of storm water inlets and piping which also carry the water from streets and developments to drainage areas.

Maintenance of these systems is very important. Debris in ditches and streams obstruct the flow of water which can cause overflow onto roads and into yards. Partial or complete filling in of these ditches can reduce the flood flow capacity, which will also result in overflow into roads or onto private property.

However, realizing that the ditch system may be a problem for some property owners, provisions are made for filling in ditches. If the property owner will contact the Kingsport Public Works Department at 229-9451, arrangements can be made

where appropriate for city workers to install drain piping, which has been purchased by the property owner, at City expense.

Maintenance of the drainage system is very important so that a high flood flow capacity can be realized. To aid in this, the City of Kingsport clears and performs other maintenance work on the system at least two times per year. Work is also performed on an emergency basis as needed.

Citizens are expected to perform routine maintenance on ditches located on right-of-ways in front of or to the rear of their properties. This includes the removal of high weeds, litter, or other items which may be considered a nuisance. Also, property shall be maintained so that water cannot become stagnant, and breeding areas are not provided for mosquitoes.

A litter ordinance is also in effect which makes it unlawful to deposit litter in bodies of water "in a park or elsewhere". This includes lakes, rivers, and streams.

If you know of unapproved changes occurring to the drainage system, such as filling or rerouting of streams or ditches, or a nuisance situation which exists, please contact the Kingsport Building Department at 229-9393.

Additional information on floods and related topics is available for review at the Kingsport Public Library, located at 400 Broad Street. Other pamphlets on floods in and related items can be obtained at the Kingsport Planning Department.

This pamphlet is an informational publication of the City of Kingsport Planning Department, F. M. Crowell, Director. The principal author of this document was Carolyn M. Ashburn, Planner II. Inquiries regarding this document should be direct to the Planning Department, located in City Hall, 225 West Center Street, Kingsport, TN 37660.

Flood Warning: Charlotte County

One criticism of the Kingsport example is that the radio and TV stations that issue flood warnings are listed by call sign but their frequencies are not included. As with most Florida communities, Charlotte County has an extensive flood warning and preparedness program. The following is an excerpt from its brochure.

Note how this notice relates the warning to evacuation and further instructions that everyone has in their telephone books. This project would receive full credit for the flood warning topic. The telephone book pages could be submitted for credit for flood safety.

Charlotte County Residents:

**98% Of County Population Is
Vulnerable To Loss
From Flooding**

**Are You
Prepared?**



Charlotte County's Flood Warning System

The most serious threat of general flooding is during the hurricane season (June through November). Residents should tune to TV and radio weather broadcasts and be alert to special local advisories. Local radio and TV stations will carry advisories for our area:

Radio

WKII (AM 1070)
WCCF (AM 1580)
WIKX (FM 92.9)
WEEJ (FM 100.1)
WENG (AM 1530) (*Englewood Area*)

TV Stations

WBBH Channel 20
WINK Channel 11
WWSB Channel 40 (*Englewood Area*)

The Office of Emergency Management (OEM) maintains direct contact with the National Weather Service and National Hurricane Center and relays updates of threatening weather to government, media, hospitals, and nursing homes. The OEM can override the local cable broadcast system to provide storm and flood watch and warning updates. Law enforcement and fire-rescue have the capability to deliver flood warning messages in the unlikely event of a storm developing at night with no opportunity for prior warning to the public.

Evacuation Routes are identified on page 16 of the blue pages of the telephone directory.

Assistance in evacuation can be arranged for eligible parties by registering with the OEM. Call 743-1270 for more information on the Special Needs Program.

Flood Hazard and Map: Boulder

The City of Boulder, Colorado, developed a multi-page, well illustrated brochure. It was distributed with a cover letter to residents of the floodplain. The cover letter included the following language [Bold print in original]:

“The purpose of this letter is to notify you that:

- **your property is subject to possible flooding.**
- **most homeowners’ insurance policies do not cover loss from flooding. . . .”**

Excerpts from this brochure are included on the following pages. Note how the use of local photographs conveys the immediacy of the hazard. The hazard is also localized by the reference to a well-known and deadly flood that occurred nearby.

The attached pages received full credit for the topics of the local flood hazard and the flood hazard map. Additional pages in the Boulder brochure cover flood warning, safety, insurance, property protection, and regulations, but are not included here.

Boulder's Flood Hazards

What Everyone Should Know



Flooding on Taft Drive on August 21, 1982.

City of Boulder
Flood Management Utility Office



The area near 9th and Canyon was severely damaged in the flood of 1894. Highland School is visible at left.

Where will it flood in Boulder?

The map on the next panel indicates Boulder's 100-year floodplain or high risk flood hazard areas. These areas are lands in the floodplain that are subject to a 1% or greater chance of flooding to a depth greater than one foot in a single year. In other words, they are properties that have about a 25% chance of being flooded over the life of a 30-year mortgage.

Smaller floods have a higher rate of occurrence than large floods. However, the damage smaller floods cause cannot be disregarded. Boulder's primary flood season is from May to August, but flash floods can occur at any time throughout the year and can affect nearly every person in the city.

Even though your home or business may not be located in one of these areas, you may still be affected by a flood. Flash floods, which reach peak flows in a short length of time (hours or minutes) after the onset of a rainstorm, are especially hazardous for Boulder residents. Flood waters can wash out roads, cause loss of power, and contaminate drinking water.

Everyone should be prepared for a flood.



Boulder is at risk for flash floods.

Boulder's beautiful natural setting is one of its greatest assets. Yet, its location at the mouth of Boulder, Sunshine, Gregory, and Lefthand canyons also places its residents at risk from flash floods. In 1976 the Big Thompson Canyon, located 35 miles north of Boulder, generated a flash flood of such force that it killed at least 139 people, injured 88 others, and destroyed 361 homes and 52 businesses. That disaster provided valuable lessons for the City of Boulder and Boulder County in working to reduce the impacts of such an event in our community, but individuals must also be aware and prepared.



Flash floods...

result when heavy rains fill natural and engineered drainage systems to overflowing. The flood waters move so rapidly and powerfully that they carry away trees, boulders, mud, structures, vehicles, other debris, and people.

When a flash flood occurs, time is short – **seconds** can mean the difference between safety and tragedy. Understanding the dangers and knowing what actions to take can save your life.



Flood waters surround the Boulder Depot at 30th and Pearl streets on May 15, 1978.

For further information, visit the Flood Management Utility Office at 1739 Broadway, or call them at 441-3240.

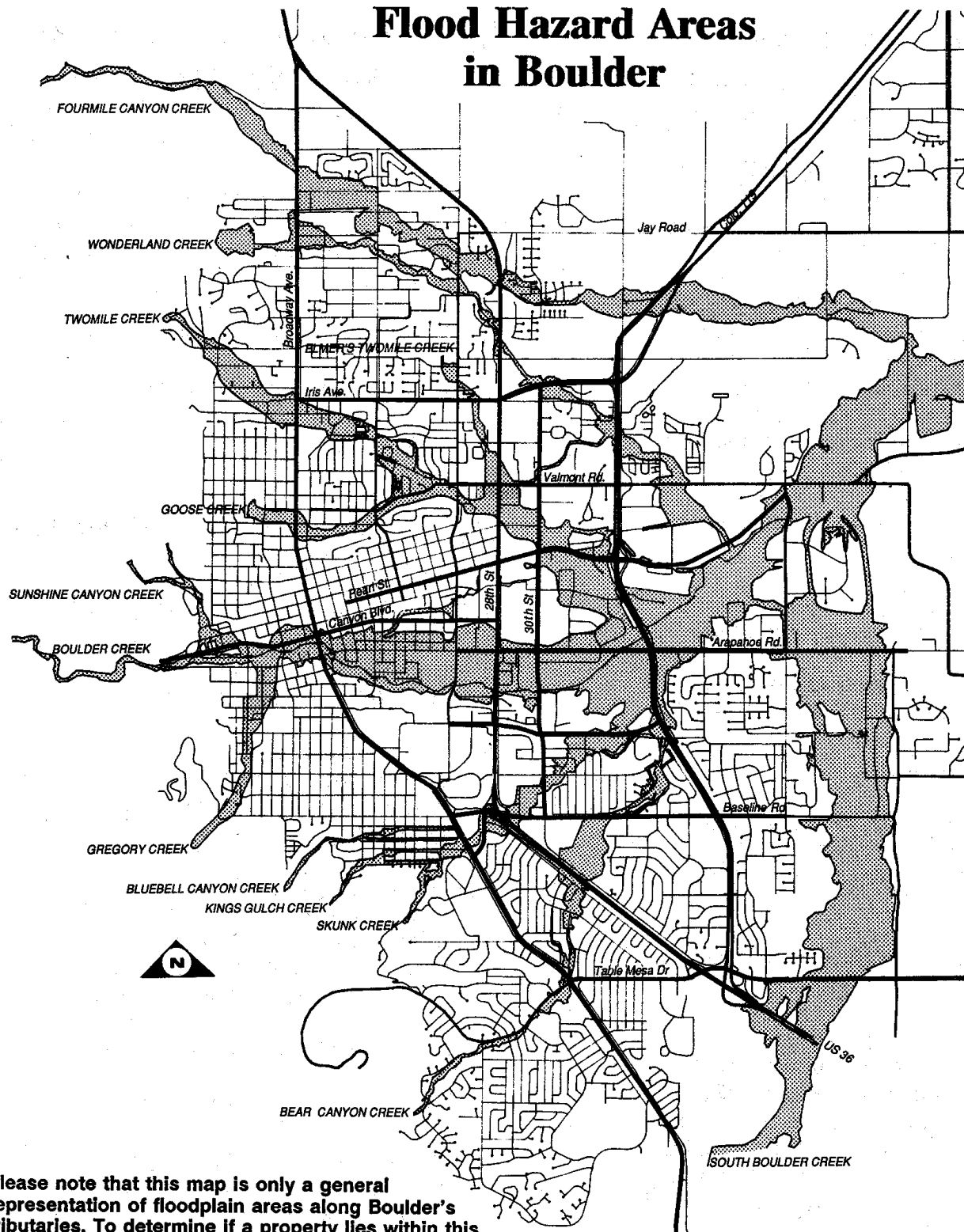


Flooding at 28th and Spruce streets on June 6, 1968.

Prepared by the City of Boulder, Colorado
Department of Public Works
Utilities Division
Flood Management Utility Office
P.O. Box 791
1739 Broadway
Boulder, Colorado 80306
(303) 441-3240

Printed on recycled paper
5/90

Flood Hazard Areas in Boulder



Please note that this map is only a general representation of floodplain areas along Boulder's tributaries. To determine if a property lies within this area, call or visit the Flood Management Utility Office.

Natural and Beneficial Functions: Sacramento County

The following is taken from a flood protection flyer prepared by Sacramento County, California. It covers most of the 10 topics. This section discusses the importance of maintaining water quality and what the reader can do. This excerpt would receive full credit for the topic of natural and beneficial functions.

It is also important to note that this was written before this topic became eligible for CRS credit. It underlines the importance of preparing an outreach project that meets local needs. CRS credit should be a secondary consideration.

STORMWATER QUALITY

The storm drain system carries untreated stormwater runoff directly to creeks and rivers. Improper pouring of wastes into storm drains directly impacts our environment. Oil, paint, fertilizer and pesticides pollute the water, destroy plants, endanger wildlife and affect drinking water. The pollutants most commonly dumped into storm drains are motor oil, fertilizer, antifreeze, pesticides, herbicides and paint.

Water Quality Impacts

One quart of oil can contaminate 250,000 gallons of water. The oil from one motor oil change can create an 8 acre oil slick. Antifreeze is toxic to people, domestic animals and wildlife. Paint products can be harmful to people, animals and the environment. Pesticides are deadly to fish, birds and other wildlife. Herbicides destroy stream-side brush and vegetation as well as animals. Fertilizers encourage the growth of algae, which can reduce the amount of oxygen in water and lead to fish kills.

Much of the water we and other Californians drink comes from the American and Sacramento Rivers. Contamination can increase human health risk and endanger the food chain.

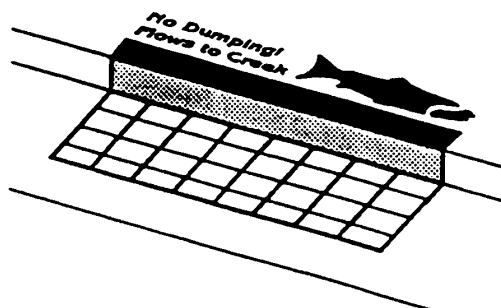
Water Quality Benefits

- We have clean water in our rivers for drinking, wildlife and recreation.
- Storm drainage facilities that are free of sediment and trash require less maintenance.
- Stream corridors are ribbons of green that provide a healthy habitat for wildlife and an attractive space in a neighborhood.

Do you care about reducing pollution in the Sacramento and American Rivers and local creeks?

If so, here's what you can do to help.

- Properly store and dispose of oils, chemicals, antifreeze and other toxic material. Sacramento County Hazardous Waste Division collects recyclable and toxic household waste. Free collection events are held regularly. Hazardous Materials also investigates hazardous spills. To report a spill or for collection event information call 386-6160.
- Never dump any waste in the storm drain. Dispose of litter and animal waste in a trash can. Sweep sidewalks, gutters, driveways and other paved surfaces. Put the debris in a trash can.
- Participate in storm drain stenciling. Storm drain stenciling is an important public awareness activity to alert citizens that dumping litter and hazardous materials into storm drains is harmful to our environment. If you belong to a volunteer group and would like to stencil storm drains, call the WRD at 440-6851.



OPA Projects

Communities have submitted a variety of projects for OPA credit. Here is a list of some of the examples that have been implemented and credited. Note that these projects all reach out to people. Preparing a poster or map that stays in a city office would not be credited.

- Ocean City, Maryland, and the Maryland Department of Natural Resources, Coastal Resources Division, prepared a poster on hurricane warnings and safety. They were given to restaurants and hotels to be posted to inform visitors to this resort city of the local hazard and evacuation procedures.
- The Mayor of Harrisburg, Pennsylvania, proclaimed a flood awareness week in June. There was a lot of publicity about the flood exhibits, videos, and information set up in the atrium of the City Government Center during the week. On each day there was a different activity, such as seminars for insurance agents and lenders and a demonstration by the Red Cross on responding to emergencies.
- The emergency manager for Dare County, North Carolina, set up a booth at a local shopping mall for two days. He handed out brochures and answered questions on a variety of flood-related topics. He also gave a presentation and handed out brochures at the Outer Banks Beach Club, a meeting attended by many floodplain property owners.
- Counties in the Tampa Bay area of Florida produce a multi-page color newspaper supplement at the beginning of hurricane season each year. The supplement includes maps of evacuation zones and warning and safety information. There are many CRS communities in those counties and each receives the OPA credit.
- South Holland, Illinois, sponsored a floodproofing open house. More than 150 people attended one evening session, which included presentations on flood protection, village programs, and displays by over 25 contractors, insurance agents, and government agencies.
- Boston, Massachusetts, conducted an annual flood hazard workshop on cable TV.
- Farmington, Maine, gave a “Flood Hazard Word Search” to school children to encourage them to think about the hazard.
- The State of North Carolina printed restaurant placemats with hurricane information, safety tips, and a word search. This is especially useful in coastal areas where tourists may not be aware of the hazard.
- Other communities have given out short messages about flooding through a variety of media. These include one-liners on utility bills, flood safety information on grocery shopping bags, and signs erected in floodprone areas showing historic flood heights.



Don't get swept away.

Flash Floods Kill!

Important information on flooding, flood insurance and flood control projects from the Clark County Regional Flood Control District.

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT



Flash Flood Safety Facts

Flash floods in Clark County most often result from high intensity, short duration storms, typically in middle to late summer. Although flooding has been experienced in every month of the year, May through September is considered flash flood season throughout Southern Nevada.

Localized storm activity can cause severe flooding in very limited areas. The desert's unique weather and soil conditions increase the chances for flooding, and unseen rainfall in the mountains may take hours or even days to reach our valley's washes or floodways.

The majority of flood-related deaths in Clark County have resulted from attempts to cross flooded wash areas or streets. Children have died in dry washes from collapsing dirt. Even walking through shallow fast-moving flood water can prove fatal. Flood waters are always dangerous and should always be avoided.

Flash Floods Kill!

Flash floods can occur anywhere.
Avoid flood-prone areas.
Check your policy - flood insurance is available to everyone.
Turn around - NEVER drive through flooded areas!
Stay away from dry washes, low areas, and moving water.

This is a flash flood safety handout from the Clark County Flood Control District, Las Vegas, Nevada. This eight-part folder has an eye catching cover. Inside, the folder explains flood insurance, flood safety, and where to get help.

Floodproofing Open House

**Wednesday,
August 27, 1997
7:00 p.m. to 9:30 p.m.**

Marie Irwin
Community Center
Ridge Road and Highland Ave
Homewood, IL

**A Self-Help Program
to
Prevent Flood Damage from
Overland Flow, Sewer Backup and
Leaky Basements**



A Floodproofing Open House brings local officials, contractors, and flood experts together to provide one-on-one advice and information to residents.



Floodproofing Open House - Wednesday - August 27, 1997 - 7:00 p.m. to 9:30 p.m.

The Marie Irwin Community Center - Ridge Road and Highland Ave - Homewood

A Self-Help Program to Prevent Flood Damage from Overland Flow, Sewer Backup and Leaky Basements

Who should attend?

Residents and businesses who have flooding, drainage or sewer problems.

Why should you attend?

To learn about ways to protect your home or basement from flood damage through simple self-help methods.

What information is available?

Self-Help Ideas:

A slide show presented by a floodproofing expert will introduce floodproofing techniques to protect your home from flood damage.

A video will be shown on how to retrofit your home or property to protect against flood damage.

Government Agencies:

Floodproofing experts will be available to provide one-on-one advice for your particular home or property on how to prevent future flood damage.

Building officials will be present to explain how to get the necessary Village permits and assistance.

Representatives from other agencies will help you understand the causes of flooding and possible solutions.

Exhibits by Contractors:

Contractors offering an array of services will be on hand to explain their products. Many will have models showing how these products would work in your home to help prevent flood damage.

Flood Insurance Expert:

A representative from the National Flood Insurance Program will be there to answer your flood insurance questions.

Pamphlets and Materials:

A Village guide to flood protection and other handouts will be available free to help you better understand what to do after a flood and how you can protect your home from flood damage.

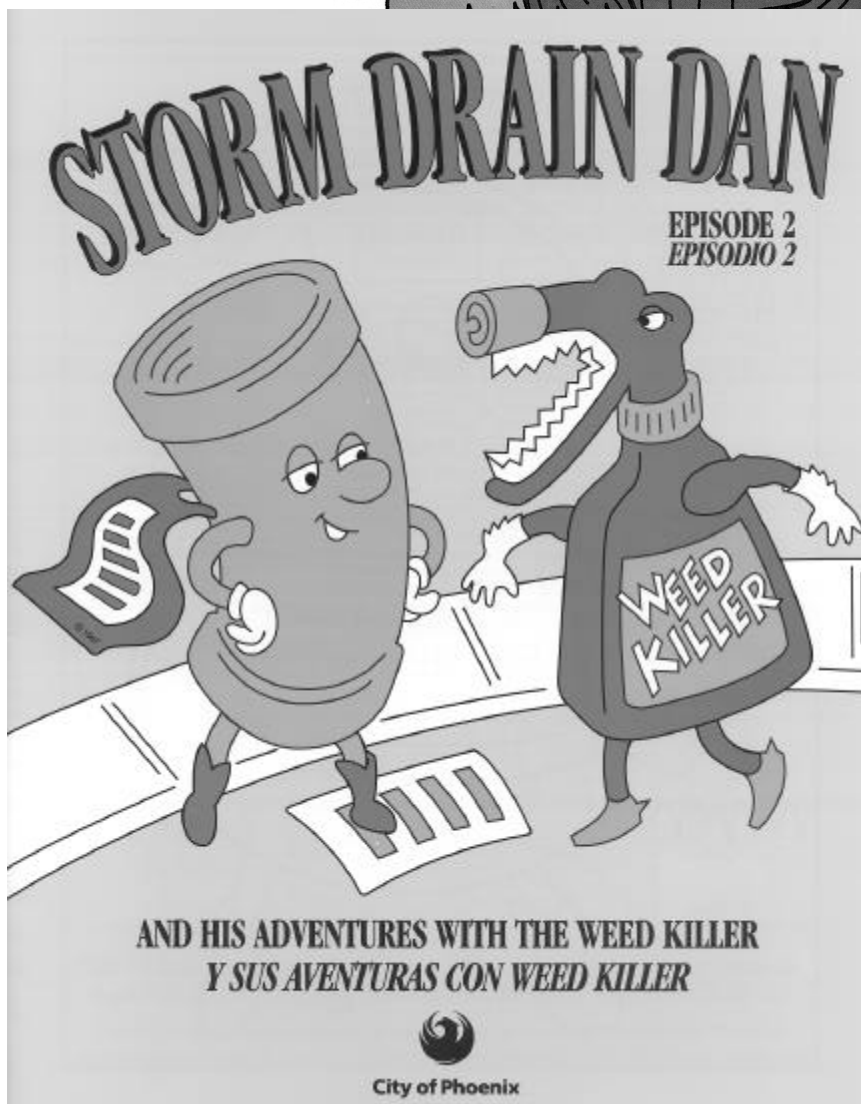
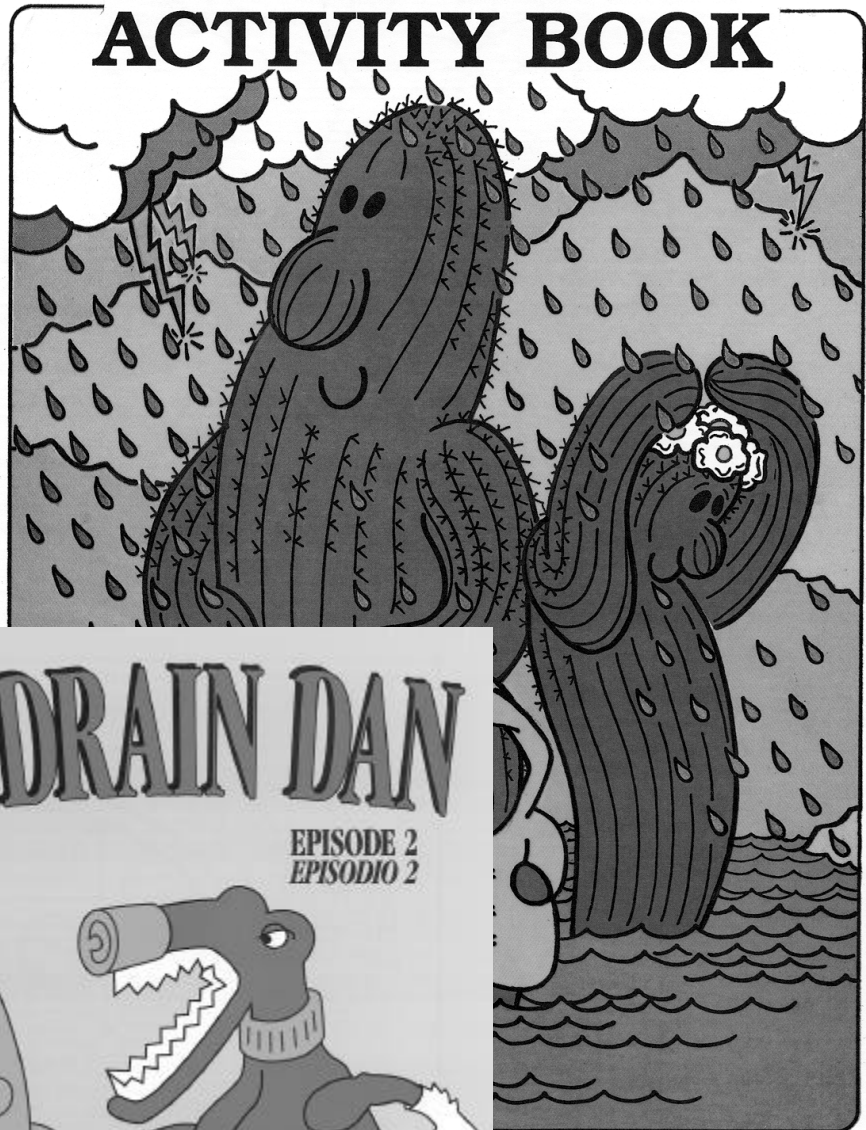
When and where is it?

Wednesday, August 27, 1997, from 7:00 p.m. to 9:30 p.m. at the Marie Irwin Community Center, Ridge Road and Highland Ave, Homewood. The Center is four blocks east of the Homewood train station.

This is an open house - you may drop in at any time between 7:00 p.m. and 9:30 p.m.

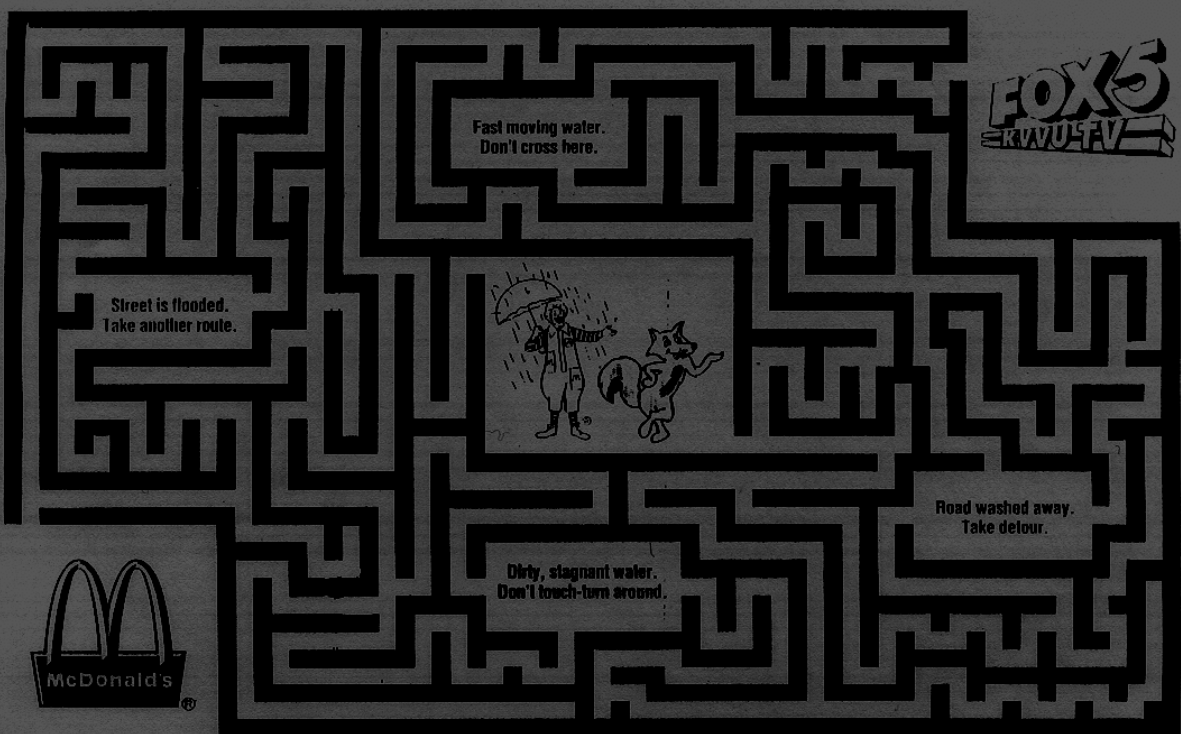
FLOOD SAFETY ACTIVITY BOOK

Flood safety puzzle
and coloring book
from Pima County,
Arizona, Flood
Control District.

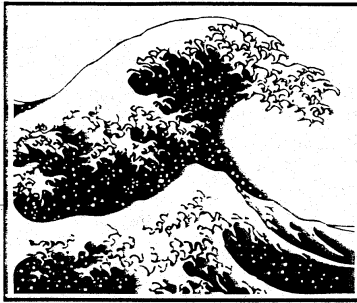


Another book oriented
to elementary school
children, this one is in
both English and
Spanish. Prepared by
the City of Phoenix,
Arizona, it receives
CRS credit for the topic
of natural and beneficial
functions.

**Color Ronald McDonald® and Rusty the Fox.
Then help them both get home safely through the maze.**



Flood safety placemat published by McDonald's, KVVU-TV, and Clark County, Nevada, Flood Control District.



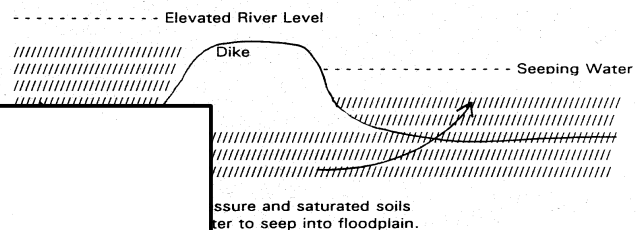
LAKE ST. CROIX BEACH FLOODPLAIN HOMEOWNER'S GUIDE

This brochure is created by the City of Lake St. Croix Beach to assist its residents in understanding the floodplain area of the City, and to provide information needed to properly manage floodplain development.

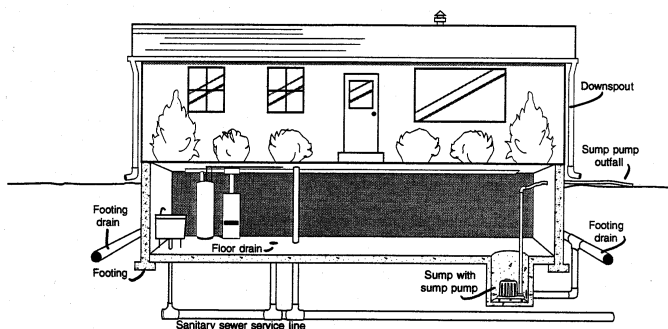
FLOOD HAZARD

Your home is in the floodplain. The floodplain of Lake St. Croix Beach has a meandering boundary which is difficult to describe in words. If you have any question as to where your home lies within the floodplain, it is best to consult the Flood Insurance Rate Map (published by the National Flood Insurance Program) located in City Hall, 1919 Quebec Avenue. City staff will be able to assist you in reading the map and locating your residence. We have 35 homes which are directly affected by the 100-year floodplain. Twenty-five of those residences are in the 10-year designation, at or below 687' elevation. Normal pool of the St. Croix River is 675' elevation.

Flooding, at some level, is nearly an annual event in Lake St. Croix Beach. Floods here are usually the result of seepage: as the St. Croix River rises,



Guide To Basement Flooding



December 1995



VILLAGE OF ORLAND HILLS

Two general flood protection booklets. Lake St. Croix Beach's is direct and simple on 8½ x 11" paper. It also qualifies as an OPF.

Orland Hills has two booklets, one for surface flooding and one for basement flooding. These are displayed at the main counter at Village Hall and are free for any resident to take.

PERMIT REQUIREMENTS

With Parker's participation in the National Flood Insurance Program (NFIP), the city administers flood management regulations that minimize the potential for damage to property and the environment.

ARE YOU INSURED

For many years, the city has been a leader in flood insurance coverage. The National Flood Insurance Program (NFIP) is a federal program that provides flood insurance to property owners in participating communities.

In accordance with the NFIP, the city requires all property owners to obtain flood insurance coverage. This requirement is designed to protect the city's investment in flood management and to ensure that property owners are protected in the event of a flood.

The city's flood insurance program is a comprehensive one that covers all types of property, including residential, commercial, and industrial. The city also provides information and assistance to property owners who are interested in obtaining flood insurance.

PREPARATION FOR EVACUATION

When a flood warning is issued, it is important to be prepared for evacuation. This includes having a plan in place, knowing the evacuation routes, and having a radio tuned in to local stations. Even if the flood does not occur, it is important to be prepared in case it does.

FLOOD WARNING SYSTEM

The city's flood warning system is a comprehensive one that includes a variety of methods for disseminating flood warnings. This includes the use of sirens, radio broadcasts, and the city's website. The city also provides information and assistance to property owners who are interested in learning more about the flood warning system.

PROPERTY PROTECTION

Every year, flooding causes billions of dollars in damage to property in the United States. This damage is often preventable, however, if property owners take the proper steps to protect their property. The city provides information and assistance to property owners who are interested in learning more about property protection measures.

FLOOD INSURANCE RATE MAPS

The city's flood insurance rate maps are a valuable tool for property owners. These maps show the areas of the city that are at risk of flooding and the potential for damage. The city also provides information and assistance to property owners who are interested in learning more about flood insurance rate maps.

FLOOD PLAIN MANAGEMENT

In their undisturbed state, flood plains provide many benefits to the community. They absorb excess water, reduce the risk of flooding, and provide habitat for wildlife. The city provides information and assistance to property owners who are interested in learning more about flood plain management.

FLOOD SAFETY MEASURES

The city of Parker provides a variety of flood safety measures to its residents. These measures include the installation of flood barriers, the use of sandbags, and the use of flood-resistant materials. The city also provides information and assistance to residents who are interested in learning more about flood safety measures.

CITY OF PARKER FLOOD FACTS

Important information for residents and property owners regarding the risk of floods in City of Parker for the Fall of 1998 and Spring of 1999.

Effective December 15, 1993, National Flood Insurance Program policies issued or renewed for properties in the Special Flood Hazard Areas of Parker receive a 5% premium discount. According to the Federal Emergency Management Agency, this discount is the result of the city's increase to a Class 9 in the National Flood Insurance Program's Community Rating System. The city has achieved this improved rating through activities such as maintenance of drainage facilities, regulation of storm water discharge and implementation of the Community Outreach Program.

Assistance Is Available

One of the reasons Parker is recognized for its good flood plain management policies is that the city provides public information regarding flood hazards, flood insurance, and flood protection and mitigation measures designed to correct existing deficiencies in flood-prone construction.

The City of Parker, Florida, assembled this unique OPC. An envelope with nine pieces of paper is sent to every City resident. Each paper covers one of the CRS credited topics. This approach is more "catchy" and the contents are more likely to be read by the recipient.

OPS DOCUMENTS

Orland Hills, Illinois

Orland Hills is a Chicago suburb of about 5,000 people. Its major flooding concerns are local drainage problems, many of them created or aggravated by property owners regrading their yards, altering drainage swales, or building obstructions in drainage ways along property lines.

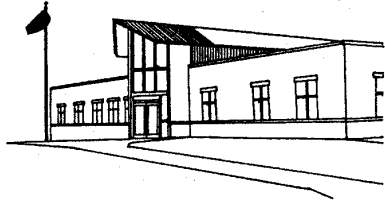
In 1995, the Village adopted a *Flood Protection Plan* that was credited by the CRS as a floodplain management plan. The Flood Protection Planning Committee that prepared the plan has continued to meet twice a year to review plan implementation and flooding and drainage concerns. Because the Committee includes representatives of Village staff and residents, it was a natural body to be the OPS strategy team.

Staff prepared the beginnings of a public information program strategy by drafting the sections on the flood hazard, flood safety and protection measures (mostly taken from the *Plan*), and current public information activities. This draft was taken to a meeting of the Committee/strategy team. The Committee then discussed what was important to the Village's program, what messages people really needed to know, and what the best ways are to convey those messages.

The staff took notes. The Committee voted on the goals and recommended activities in concept. The next day, staff the drafted the remainder of the strategy document and circulated it to the Committee members. A few minor changes were made and the Village Administrator signed the memo recommending adoption by the Village Board of Trustees.

The Committee knew that the strategy could be implemented by direction of the Village Administrator. However, the members wanted to bring the program to the attention of the Board of Trustees and wanted Board members to participate in the recommended activities. Therefore, a resolution of adoption was submitted to the Board and passed. It is included as an example, but such a resolution by a city council is not a CRS requirement.

Monitoring and evaluating the strategy is a natural assignment for the Flood Protection Planning Committee, which was already meeting twice a year to monitor and evaluate implementation of the Village's *Flood Protection Plan*. The monitoring and evaluation section at the end of the strategy and the resolution of adoption both charge the Committee with the responsibility of tracking implementation and recommending needed changes.



VILLAGE OF ORLAND HILLS

MEMORANDUM

To: Village Board of Trustees
From: John Daly, Village Administrator
Subject: Public Information Program Strategy
Date: June 12, 1998

The Village of Orland Hills prepared its *Flood Protection Plan* to identify ways to prevent and reduce losses from flooding and drainage problems. The *Plan* was adopted in 1995 and was subsequently credited as a Floodplain Management Plan under the Community Rating System (CRS).

The *Flood Protection Plan* recommended several public information activities that were also credited by the CRS. The CRS is now proposing to provide a new credit for outreach projects conducted pursuant to a public information program strategy. The strategy must be developed by a "public information strategy team" that must include Village staff and at least one representative from outside Village government.

The Flood Protection Planning Committee that developed the *Flood Protection Plan* is composed of both Village staff and residents. The Committee has continued to meet twice a year since the *Plan* was adopted to monitor progress and review new flood and drainage issues.

The Committee members are:

Don Bigos, Village Trustee and Chair, Flood Protection Planning Committee
Marty McGill, Village Trustee and Chair, Public Works Committee
John Daly, Village Administrator and CRS Coordinator
Joe Ennesser, Building Commissioner
Mike Worley, Director, Public Works Department
Jack Leddin, ESDA Coordinator (emergency manager)
Maryann Galvanauskas, resident
John Ghilardi, resident
Bradley Brink, Village Engineer, Robinson Engineering, Ltd.

The Committee qualifies for and is considered the Village's public information strategy team. The Committee met on June 10, 1998, to prepare the Village's public information program strategy. Attached is the proposed Strategy document and a resolution to adopt it, which is recommended for Board adoption.

Attachments

Resolution No. 98 - 25

A RESOLUTION OF PUBLIC INFORMATION STRATEGY OF FLOOD PREVENTION

WHEREAS, the Village of Orland Hills has been faced with repeated flooding and drainage problems over the years, much of which has been caused by human activity, such as dumping in ditches and small construction projects that block drainage swales; and

WHEREAS, the Village adopted a *Flood Protection Plan* that recommended many activities to prevent and reduce the flood and drainage problems; and

WHEREAS, the Village has applied for and become a participant in the Community Rating System, which has lowered flood insurance premium rates in the Village; and

WHEREAS, the *Flood Protection Plan* is a dynamic activity, subject to changes that may be needed. Implementation of the *Flood Protection Plan* has been monitored by the Flood Protection Planning Committee and been revised each year based on the Committee's recommendations; and

WHEREAS, the Flood Protection Planning Committee has prepared a Public Information Program Strategy in response to new credits proposed by the Community Rating System, which is consistent with the *Flood Protection Plan*.

NOW THEREFORE, BE IT RESOLVED THAT:

First: The Public Information Program Strategy is hereby adopted as the policy of the Village of Orland Hills, Illinois. The Strategy is considered an additional Action Item of the *Flood Protection Plan*.

Second: The Village Administrator is charged with supervising the implementation of the Strategy.

Third: All Trustees and Village staff members should take it upon themselves to follow the spirit of the Strategy and keep flood protection and prevention of drainage problems in mind when meeting with residents.

Fourth: The Flood Protection Planning Committee shall monitor the implementation of this Strategy and report on progress to the Board of Trustees as part of the Committee's annual progress report on the *Flood Protection Plan*.

Adopted and approved by the President and Board of Trustees of the Village of Orland Hills, Cook County, Illinois this 1st day of July, 1998.

ATTEST:

Kathy A. Chapman
Kathy A. Chapman
Village Clerk

Kyle Hastings
Kyle Hastings
Village President

Village of Orland Hills, Illinois

Public Information Program Strategy

Purpose: This Strategy document has been prepared by the Flood Protection Planning Committee to identify ongoing public information activities and recommend new ones to better inform our residents on how they can protect themselves from flood and drainage problems.

The Flood Hazard: Orland Hills' drainage system is subject to four flood problems. These were described in the 1995 *Flood Protection Plan*:

1. Overbank flooding from Tinley Creek and its tributary, Highview Ditch: Tinley Creek is the main drainageway through Orland Hills. When Orland Hills was developed in the 1960's, the channel was straightened and deepened so it would carry water more efficiently. In one section, it was rerouted to follow lot lines. Much of the creek's flood problems can be traced to the alterations made to what was once a natural drainageway.

Property lines run to the middle of the channel. Most property owners maintain their parts of the channel bank, although some do not. In some areas weeds and brush have been allowed to grow. Rocks placed as rip rap on the banks have been moved to the channel bottom, apparently by children. The worst problem in the channel is the condition of some of the culverts. They are so small that they act as dams even when clear. Over time, debris collects in them, rip rap is moved to block them, and they suffer from wear and tear.

All of these factors mean that the carrying capacity of the channel has been reduced. It takes less water to fill the channel and cause overbank flooding than it used to. The result has been street and yard flooding, erosion of the channel banks, and some building flooding.

2. Overbank flooding from Midlothian Creek headwaters: The southeast portion of Orland Hills drains into the headwaters of Midlothian Creek. The mapped 100-year floodplain is substantially on public property, streets, or back yards. However, the floodplain does fill with water and has caused nuisance flooding in streets and yards.
3. Underdesigned or obstructed storm sewers: Storm sewers have been installed in some areas of town to augment the surface drainage system. Storm sewers won't work if they are Underdesigned or when they are blocked. There are several known examples of blockages. The primary impact of storm sewer problems is water in the streets and yards.
4. Yard drainage problems: When subdivisions are laid out for development, a five or ten foot easement or set back is established. When the lot is built on, there should be no construction in this easement. A shallow depression or swale is kept along the lot lines. The swale guides stormwater runoff to the street or storm sewer.

Over the years, this drainage system has been disrupted. Many property owners are not aware of the need to keep their easements and swales open. They installed sheds, planters, railroad ties or swimming pools in the easements. They built fences right on their lot lines to enclose the largest part of their properties.

Early homes in Orland Hills, especially homes on crawlspaces, were built at the original ground level. Later home builders, especially for tri-levels, added fill around the lots. This provided positive drainage from the lot, protected the lower areas from drainage problems, and improved the appearance of the site.

Now when it rains, the runoff goes downhill to the lowest point: the older buildings that did not backfill or raise their lots. Directing downspouts and sump pump discharge pipes toward the property line aggravates the water problem that the lower owner receives. Often the first property developed becomes the recipient of runoff as later builders fill in their lots.

In at least one new area, the back yards were set aside as detention areas. Property owners have already cut into the berms, built fences and otherwise modified these detention areas. Not only is their future effectiveness in question, but the owners may start complaining when they see a lot of water staying in their yards, even though that's where it's supposed to be.

Bad yard drainage occurs throughout Orland Hills, in new subdivisions and in the original town. It can have as much of an impact as overbank flooding. Sometimes, the result is a nuisance, such as a soaked backyard. However, either shallow water on the surface or saturated ground can cause flooding several feet deep on a floor that is below grade. Some tri-levels in Orland Hills do not have finished lower areas because of chronic flooding from bad yard drainage.

In sum, the Village's flood and drainage problems occur throughout town. They are primarily the result of man-made alterations to, or a lack of maintenance of, the drainage system, usually on the part of the adjacent property owners. The Village has done a lot to improve this system since 1995. We have initiated a formal drainage maintenance program and installed larger culverts. We have a better permit enforcement program than before. We have distributed information and staff talks to residents about flooding and drainage.

As a result of these efforts, the number of complaints has decreased and residents have become more aware of how problems occur and what their role should be. Since the bulk of the problem is caused by people and/or negligence, a public information program directed to residents can go a long way to prevent and reduce flood problems.

Flood Safety and Protection Measures: Flooding in Orland Hills usually comes quickly during or after a heavy storm. Flood depths are shallow, but people should take safety precautions, such as staying out of flooded areas and turning off the electricity in a flooded house.

People can best protect themselves and their properties by maintaining their yards, drainage swales, ditches and streets, reporting violations of the dumping regulations, and carrying flood and/or sewer backup insurance.

Other protection measures depend on the type of foundation:

- Split levels, tri-levels and buildings with basements can be protected with sump pumps and sewer backup protection measures, such as overhead sewer lines.
- Slab foundation buildings subject to shallow flooding can be protected by dry floodproofing or low barriers.
- Buildings on crawlspaces can be protected by barriers, wet floodproofing or elevation.

Current Public Information Activities: The Village's public information activities were recommended by the Flood Protection Plan and formalized as part of its Community Rating System (CRS) program. The following activities are conducted:

- The Building Department provides map information based on the Flood Insurance Rate Map and the engineer's GIS version of it.
- Articles on flooding and flood protection are carried periodically in the Village newsletter. Over the period of a year, 9 of the 10 CRS credited topics are covered:
 - Flood hazard
 - Flood hazard map
 - Flood safety
 - Flood Insurance
 - Property protection
 - Permit requirements
 - Substantial improvement regulations
 - Drainage maintenance
 - Natural and beneficial floodplain functions
- The Village has two 12-page booklets, *Guide to Flood Protection* and *Guide to Basement Flooding*. Copies of *Guide to Flood Protection* are sent out to all 132 floodplain residents each April. It covers the same 9 topics as the newsletter articles.
- Copies of *Guide to Flood Protection* and *Guide to Basement Flooding* are on display in the Village Hall for anyone to take.
- Additional references are on file at the library.
- The Building Commissioner is advertised as available to talk to residents who want help with flood, drainage or sewer backup protection. He talks to 5 - 10 residents each month.
- The Village assisted with a Floodproofing Open House held in the next community in May 1997. Three families registered, two of whom had been flooded in February 1997 and July 1996.

Goals: The goals of this Public Information Program Strategy are, in order of importance:

1. Have all residents familiar with the causes of local flood and drainage problems and the steps they can take to prevent or reduce the problems.
2. Have all residents familiar with the reasons for and regulations about dumping and alterations to watercourses and yard swales.
3. Have all residents familiar with basic flood safety and health precautions.
4. Have all residents familiar with flood and sewer backup insurance.

Recommended Public Information Activities: The Village's Public Information Program is based on three guiding principles:

1. Face to face communication is more effective than distributing written materials or using electronic media. It allows for site-specific explanations and examples and it provides feedback on whether the recipient understands the message.
2. Prevention is better than correction. Flooding and drainage in the Village are currently well managed as long as people realize how problems are caused and they don't create more problems. The more staff contacts there are on flood or drainage issues, the more staff will find out about potential problems before they are created.
3. The program should focus on one or two simple messages at a time. It should not overwhelm residents with complicated explanations of many different aspects about flooding and flood protection.

With these guiding principles in mind, the following activities are recommended:

1. The activities currently being implemented and receiving CRS credit should be continued. They have proved useful.
2. Each year, the Village will identify the major flood protection message that will be disseminated during staff contacts with residents.
 - A. These contacts include, but are not limited to, applications for building permits, site inspections, inquiries on flood map information, and resident complaints about water or sewer problems.
 - B. Village trustees are encouraged to repeat the message in their contacts with the public.
 - C. A one-page flyer will be prepared for each message, to reinforce the verbal message and provide an explanation that people can take with them. The flyers will be provided to school children, too.
 - D. The message will be repeated periodically on the public access cable TV channel.

3. The message for 1998 is “Don’t forget your drainage.”
 - A. The message will advise residents:
 - of the causes and effects of not caring for local drainage,
 - how their yard drains,
 - to not obstruct the drainage with sheds, swimming pools, planters, etc.,
 - to keep their storm sewer inlets cleared, and
 - to call the Village if they see a problem.
 - B. The Building Department puts stickers on permits to remind the applicant of key permit requirements. Permits for sheds, swimming pools, and other projects that can alter yard drainage will have a sticker that reads “There shall be no alteration of any drainage system or swales on the permit property and/or surrounding properties.”
 - C. The one-page flyer on the message will be included with building permits and other appropriate Village communications to residents.
4. The message for 1999 will be on protecting basements from sump pump failure and sewer backup. Messages for future years will be decided during the February evaluation meeting of the Flood Protection Planning Committee.
5. At its February evaluation meeting, the Flood Protection Planning Committee will finalize plans for an annual Spring Flood Awareness month.
 - A. During that month, the new flood protection message will be introduced and repeated through various media, including cable TV notices and the Village newsletter.
 - B. The annual mailing to floodplain residents will be done during the month.
 - C. The Village Hall counter, the library and the schools will be encouraged to set up displays on flood protection and distribute the flyer on the year’s message.

Monitoring and Evaluation: The Building Commissioner will report on the implementation of the recommended public information activities to each meeting of the Flood Protection Planning Committee. At its February meeting, the Committee will evaluate their effectiveness and include its findings and recommendations with its annual progress report to the Board of Trustees on implementation of the *Flood Protection Plan*.

King County, Washington

The introduction to this strategy document explains its background. The CRS Coordinator signed a letter to the ISO/CRS Specialist stating that the strategy will be implemented.

The strategy team's membership is described in the document. Debi Heiden from the City of North Bend is the representative from outside the county's government. The strategy's author notes that "she has an excellent view from the outside" of the community.

Of particular interest is the assignment of the recommended activities to specific members of the strategy team. This approach will greatly help implementation and monitoring because responsibilities have been clearly stated.

Public Information Program Strategy For King County, Washington

King County has prepared this public information strategy with the primary goal of reaching all citizens in floodprone areas and encouraging them to take actions to reduce future flood risks and flood damage. This strategy has also been developed to receive credit under the Community Rating System of the National Flood Insurance Program.

The need for more citizen-initiated flood hazard reduction has never been greater. Public resources available for flood hazard mitigation projects are limited, and the costs of public works flood control projects have increased significantly, due to the need to meet multiple objectives, such as enhancement of fisheries habitat, and compatibility with recreational and other users of the resource. Further, at the national level, the National Flood Insurance Program is considering reducing federal insurance subsidies to homeowners that live in high-risk areas.

Strategy Team

In light of these trends, King County established a public information strategy team to evaluate the County's existing public outreach program and make recommendations towards reaching the goal of encouraging private flood hazard reduction actions. The public information team responsible for developing the strategy for 1999 comprised the following:

- Carolyn Duncan, Public Information Officer for the King County Department of Natural Resources;
- Cyrilla Cook, Program Manager of the Rivers Section of the King County Department of Natural Resources (the Rivers Section is responsible for implementing the programs recommended in the County's adopted Flood Hazard Reduction Plan);
- Jeff O'Neill, Site Engineering Plans Supervisor, Residential Building Services Division, King County Department of Development Services (This Division is responsible for reviewing residential building permits proposed in the floodplain, and recording elevation certificates);

- Don Gauthier, Senior Engineer, Residential Building Services Division, King County Department of Development Services; and
- Debi Heiden, Community Services Specialist for the City of North Bend, (Debi works for a small community in rural King County that experiences repetitive flooding).

The team met on December 9, 1998 to prepare the public information strategy for King County. During this meeting, the team addressed the following questions:

- ◆ How effective are ongoing King County flood-related public outreach activities in encouraging citizens in floodprone areas to take actions to reduce flood risks and private property damage?
- ◆ What kinds of programs, if any, are needed to reach a greater portion of the population?
- ◆ How could we make existing programs more effective by reaching out to all citizens in floodprone areas and encouraging them to:
 - find out if they are in floodprone areas and identify the flooding risk to their property (especially newcomers)
 - get flood insurance (taking advantage of the 20 % discount provided by CRS for King County)
 - know how to access and use the County's flood warning services
 - know what to do before, during and after a flood, and
 - take actions to floodproof their homes.

During the meeting, the Team reviewed the existing flood awareness and public outreach programs currently being implemented by King County, determined other programs that should be implemented, and made assignments for implementing those programs. . A description of these existing programs is provided later in this document. But first, a description of the local flood hazard is provided. The local flood hazard is simply the flooding conditions that exist in King County. The public strategy team considered these local flood hazards as they assessed the effectiveness of existing public information programs and additional public information needs.

Description of the Local Flood Hazard

King County is subject to two kinds of flooding: flooding that occurs on the County major river systems, and urban flooding, associated with urbanization, particularly of small stream basins. Six major rivers flow through King County: the Skykomish, Snoqualmie, Cedar, Sammamish, Green and White. Except for the Sammamish, each of these rivers descends from the crest of the Cascade Mountains to Puget Sound.

Because of their origins in upper elevations, these rivers are heavily influenced by the snow and rain patterns in the mountains. All of them travel through broad floodplains, with long histories of flooding. Flooding along King County's major rivers threatens public safety and welfare, and causes millions of dollars of damage to public and private property. These impacts result primarily from two types of hazards created by floods: inundation and bank erosion.

Inundation, defined as flood water and debris flowing through an area, can cause minor to severe damage, depending on the velocity and depth of flows, the quantity of logs and debris they carry, and the amount and type of development in the flood water's path.

Bank erosion can threaten areas that are not at all inundated by floods. For example, a home on a steep riverbank, above flood levels, can be undermined by the flood's erosive flows. Damage due to bank erosion can also range from minor to severe, depending primarily on whether or not there is a structure on the property and how close the structure is to the erosive river channel.

FEMA has mapped over 139,789 acres of King County that are at risk from inundation during the 100-year flood. This is roughly 10% of the County's total land area. The two most serious impacts of flooding in King County are loss of life and property damage. Loss of life has been minimized since King County began its flood warning system in the 1960's. King County continues to improve its flood warning services and public awareness efforts to prevent loss of life.

Property damage caused by floods is a far more widespread and frequent problem. Floods in recent times have hit King County extremely hard, resulting in 13 flood-related disasters since 1964. Significant river flooding occurred in January and November 1986, January and November 1990, and November 1995 and February 1996. The 1990 floods were the most significant to date, totaling over \$14.4 million in damage to county maintained river protection and stormwater facilities, roads, parks and solid waste infrastructure. Private sector damage was significant as well.

King County has made significant progress regarding urban drainage problems. Regulations have been adopted that require new development to control the rate of stormwater runoff from that development, thereby reducing impacts to natural and man-made drainage systems. The regulations provide requirements for controlling drainage on an area-specific basis. These include more restrictive flow control and land clearing standards in drainage basins that have erosion or flooding problems, and additional water quality standards in drainage basins with lakes that are sensitive to nutrient-loading. However, regulations on their own cannot completely eliminate urban drainage problems. The County also has an annual capital improvement program for regional capital projects to address urban drainage problems.

Progress has also been made with respect to riverine flooding. In November 1993, the County adopted the King County Flood Hazard Reduction Plan, which provides an analysis of flooding problems and potential solutions along the six major Rivers that flow through King County. The FHRP recommends comprehensive and long-term solutions to these flood problems, and includes: 1) policies to guide floodplain land use and flood control activities in King County; 2) programs and project recommendations, including capital improvement projects, maintenance, relocation and elevation of homes, and flood warning improvements and river planning activities; 3) implementation priorities for program and project recommendations; and 4) an analysis of major financing alternatives and issues.

Land use plans and development regulations are being implemented to prevent future development that would be at risk and to reduce the impacts of new construction. In fact, King County, along with several cities within the County, has adopted flood regulations that are much more effective than the minimum requirements of the National Flood Insurance Program in reducing flood hazards to upstream and downstream properties. These include prohibitions on placement of fill within the 100-year floodplain unless there is no increase in

the elevation of the 100-year flood and the requirement that any loss of flood storage caused by placement of structures or fill in the floodplain be compensated for by excavation of equivalent volumes at equivalent elevations.

Mitigating flood hazards in areas developed prior to adoption of the regulations, however, remains a challenge. Approaches currently being implemented to reduce flood hazards for existing development in flood hazard areas includes: structural capital improvement projects, channel maintenance, public education, and flood warning. Given the extreme costs of construction and maintenance of structural solutions, King County has been focusing its efforts on non-structural alternatives, such as flood property buyouts and home elevation programs, which provide permanent solutions to reducing flood hazards.

Public awareness programs, such as flood warning and public education, are an essential part of the County's flood hazard reduction plan. The public awareness program and flood warning services currently being implemented by King County are described below.

Current Public Information Activities

The following public information activities currently take place within the County:

1. Flood Hazard Information Services

King County Department of Development and Environmental Services responds to citizen inquiries for Flood Insurance Rate Map information and flood insurance purchase requirements. The King County Rivers Section provides historical flood information to citizens that request this information. We also provide technical information (control surveys, cross-section data and hydraulic model information) to landowners for flood studies the County has produced.

2. Annual Agency Meetings

King County holds annual agency meetings in each major river watershed to update the Flood Warning Center priority call lists and discuss flood warning and emergency response procedures. All first response agencies are invited to this meeting.

3. Annual Outreach to Repetitive Loss

King County annually sends a mailing to repetitive loss properties identified by FEMA, to notify them of flood hazards and to provide information on flood hazard reduction programs and steps they can take to make their properties more flood resistant.

4. Annual Flood Awareness Month-proclamation and media articles

The King County Executive annually declares October as "Flood Awareness Month." A news release, copy of the executive's proclamation and our flood preparedness brochure are sent to a comprehensive list of print and broadcast media in October. The media kits are sent to the major daily newspapers as well as weekly community newspapers in floodprone areas. The news release typically urges people in floodprone areas to prepare for the flood season ahead of time. The release and the brochure listed phone numbers and a Website address where people can get more information about what to do before, during and after a flood event.

An article about the local flood hazard, and where to get more information is also provided in the County's "Downstream News," a newsletter with more than 7,000 subscribers.

In November 1998, King County enhanced its media partnership efforts. In preparation for the predicted La Nina weather pattern this winter (colder, wetter winters), King County partnered with the City of Seattle and GTE Wireless in an extensive public information campaign called "Take Winter by Storm." The campaign included paid advertising on radio and television as well as a major news conference that received wide media coverage. These partnership efforts will continue annually.

Commercials with our phone number and Website address aired 70 times on KOMO-TV during morning, noon and evening newscasts. Similar ads aired on KIRO-AM, the number one radio news station in Seattle, and its sister stations KNWX-AM and KIRO-FM. The message was to "Take Winter By Storm" and prepare ahead of time for flooding, snow and windstorms. A phone number with a recording listing other pertinent phone numbers and a Website address with links to numerous government Web pages aired in each commercial.

The "Take Winter by Storm" news conference featured the King County Executive and the Mayor of Seattle. Five television stations, two news radio stations as well as the major newspapers covered the event. In the two weeks after the news conference, follow up stories were printed in local newspapers and aired on KIRO and KING television prime time newscasts.

It is difficult to put a firm number on the very large number of people reached during the public information campaign. However, we do have some well-researched estimates. The KOMO-TV paid advertising schedule is estimated to have reached approximately 3 million households in King, Pierce and Snohomish counties or half the homes with their televisions sets on at the time the commercials aired. The King County audience is estimated at slightly less than 2 million households.

The radio stations aired 170 "Take Winter by Storm" commercials over five weeks and reached an estimated 323,000 people. The news stories aired multiple times during prime time evening television newscasts and on lower rated early morning newscasts. The two news stories that aired on KOMO-TV during its weekday 5 p.m. newscasts reached a total of 208,000 households. A similar number of people were reached when two stories aired on KING-TV weekday newscasts. Stories aired during prime time weekday newscasts on KIRO, KSTW and KCPQ TV reached smaller, but still substantial audiences, probably another 100,000 households. We estimate print stories in the Seattle Times and the Seattle Post Intelligencer reaches a total of 500,000 readers. The Eastside Journal reaches another 35,000 readers.

5. King County Flood Warning Services

The King County Flood Warning Program's purpose is to warn residents and agencies of impending flood waters on major rivers so then can take action and prepare themselves before serious flooding occurs. The County monitors major river conditions 24 hours a day. When floods are imminent, King County activates its Flood Warning Center. Operation of the Center is based on a four-phased warning system, issued independently for each river. The thresholds for each phase are based on river gages, which measure the flood flow and stage (flood depth) of the major rivers in various locations. King County personnel warnings are issued directly to police, fire departments, schools, cities, first response agencies, and to the public through

volunteer phone trees. Personnel at the Center are available to answer questions and help interpret gage readings during a flood event. There is also a recorded message, updated hourly, providing information on river conditions. At Phase III or greater, flood patrol crews are sent to monitor flood protection facilities and respond to flood emergencies around the clock.

The County works closely with the National Weather Service to obtain forecast information used to make flood predictions. Close coordination occurs with the Office of Emergency Management, Roads Division, and other agencies in order to obtain up-to-date information about major flood problems, road closures, evacuations, and other emergency services. Coordination also occurs with the US Army Corps of Engineers and Seattle Water Department regarding dam operations.

6. Notice on Title

People looking to purchase floodprone property are advised of the flood hazard through a notice on title that is recorded on title instruments for all floodprone properties.

7. Brochures

King County has recently updated its Flood Warning Services brochure, which describes how to use the County's flood warning services, important phone numbers, a floodplain map and river monitoring gage locations, what to do before, during and after a flood, and frequently flooded roads. These brochures are sent to all repetitive loss property owners, local libraries, and any other interested persons.

The Department of Development and Environmental Services also has a customer assistance bulletin providing information about development in floodplains.

8. Internet Website

King County has a Website that can be accessed by anyone with Internet capabilities. This Website provides information about the County's Flood Warning Services, and also provides a link to the river monitor gage information, so the public can monitor river conditions directly during a flood event.

9. Public Libraries

We provide documents, brochures and other information to all our public libraries for use by the public.

Recommendations for the Public Information Program: Goals

The Public Information Strategy Team determined goals for 1999 and implementation strategies to meet those goals: The following goals were established for 1999:

Through public information and education, and partnerships with schools, other public agencies, and the private sector, help all citizens in floodprone areas take the following actions to reduce flood damage and risks:

- a. Find out if they are in floodprone areas and the relative risk to their property

- b. Obtain flood insurance (take advantage of the 20% discount provided by CRS)
- c. Know how to access and use the County's flood warning services
- d. Take actions to floodproof their homes, such as:
 - elevating washers, dryers, central heating systems and electrical panels above the 100-year floodplain;
 - anchoring fuel tanks and mobile homes;
 - installing floating floor drain plug to prevent backflow;
 - installing septic backflow valves; and
 - for homes that experience slow moving water, elevating the first floor above the 100-year floodplain; and for homes that experience deep, fast-moving water, participating in home buyout programs that become available
- e. Work with their neighbors to set up telephone trees and evacuation routes

Recommendations for the Public Information Program: Activities

The following outreach activities will be undertaken to implement the goals described above. The team member assigned to that activity is listed in parentheses after the item:

General Outreach

- a) Important phone numbers to obtain information on flooding and road closures shall be published in area phone books (Don and Jeff).
- b) The existing King County Internet site will be modified to be more user friendly, so that "flood information" is on the menu of the main page, with faster links to gage information (Carolyn).

2. Flood Awareness Month

- a) Displays. The Team recommended setting up flood awareness displays during flood awareness month (October of each year). It was determined that due to their location within the County, shopping malls may not be the most effective places to set up displays. The Team recommended developing partnerships with home improvement stores, because they are located in every community that experiences flooding. Contacts will be made to determine the feasibility of partnerships with home improvement stores where displays could be set up. (Carolyn and Cyrilla) The displays could include local flood pictures, brochures and handouts, and lists of supplies recommended for flood preparedness. The stores can also provide displays of the supplies they carry. Contacts will also be made to develop partnerships with local vendors that make magnetic "refrigerator" cards, so that cards containing flood information phone numbers could be given out free to shoppers as part of the display (Carolyn).
- b) Targeted mailings. The Team felt that newspaper, radio and television media might not be adequate in getting the flood preparedness message to everyone at risk. To reach a greater audience, it was recommended that we determine the feasibility of sending information by mail to all property owners living in zip codes that include floodprone

areas. This is a considerable effort, since it is estimated that 10% of the County is mapped 100-year floodplain. The costs and staff time associated with this mailing will be researched to determine feasibility (Cyrilla). Alternatively, it may be possible to send out this information with drainage utility billings. If it is determined that this effort can be accomplished within existing budget and staffing constraints, the mailing shall take place in October, and include the flood warning brochure, and a fact sheet with phone numbers and tools to help the public meet the four recommended described above.

3. Education and Outreach to schoolchildren.

- a) Endangered Species Outreach Program. Public Outreach staff are currently working on an informational program for area schools regarding the pending endangered species act listing for Puget Sound salmon and bull trout. This is a great opportunity to provide information about floodplains to children at the same time. The feasibility of including floodplain information (both habitat and hazards), as part of this outreach will be pursued (Carolyn). Additional funds may need to be found to help with this effort (Cyrilla).
- b) Science Curriculum. Contacts will be made with area science teachers to determine how King County can develop partnerships with teachers to bring floodplain management issues to the classroom (Carolyn).

4. Begin plans for the year 2000.

The year 2000 will be the tenth anniversary of the region's devastating 1990 floods, which caused more than \$33 million in damage to public and private properties. The message will focus on the progress the County has made since those floods. For example, since 1990, the County adopted the Flood Hazard Reduction Plan, along with surface water, wetland and floodplain regulations. In direct response to the loss of livestock experienced by farmers, a "critter pads ordinance" was adopted by the County, allowing provisions in the regulations for farmers to provide livestock sanctuary areas with minimal impacts to floodplain functions. The program for 2000 will also revisit the extensive damage caused by that flood through pictorial displays, with a reminder that those floods were NOT 100-year floods, and that flood preparedness and mitigation is still as important today as it was in 1990.

There may be opportunities for partnering with other cities on this effort. (Cyrilla, Debi, and Carolyn)

5. Continue all existing outreach programs.

Annual Monitoring

At the end of each year, the Team will meet to assess and evaluate the program, assess why certain recommendations could not be implemented and make recommendations for program improvements. Results of the program evaluation shall be included as part of the annual CRS recertification required of each community.

Skagit County, Washington

The CRS communities in Skagit County developed a joint *Outreach Projects Strategy*. Members of the strategy team included:

- The watershed planner for the County's Public Works Department
- The planning director for the City of Burlington
- The building official for the City of Mount Vernon
- The planner for the Town of LaConner
- A real estate broker from Mount Vernon
- A citizen from Burlington
- The Public Information Officer for the County

The first four people are also the CRS Coordinators for their communities.

This OPS document has particularly straightforward lists of current and recommended projects and assignments.

Each of the participating communities must individually document that it has accepted the strategy and will implement its share.

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** Indicates the CRS Coordinator for the corresponding agency.*

12/1/98

I. The Local Flood Hazard - A History of Flooding

Throughout the years, major flooding has occurred in the Skagit River Basin. Because of its geographic location, the Skagit River Basin is subject to winter rain floods and an increase in discharge during spring due to snowmelt runoff. Rain-type floods occur usually in November or December, but may occur as early as October or as late as February. Antecedent precipitation serves to build up groundwater reserves. Frequently, a light snow pack is then formed over most of the entire basin. A heavy rainfall accompanied by warm winds completes the sequence, which produces major floods. The heavy rainfall and accompanying snowmelt result in a high rate of runoff, as the ground is already nearly saturated from earlier precipitation. Two or more crests may be experienced within a period of a week or two as a series of storms move across the basin from the west. The winter floods have a considerably higher magnitude than the average annual spring high water.

While loss of life is always a possibility, it is not the primary threat. Our early warning system provides about 12 hours of notice for a major flood event. That generally allows adequate time for evacuations. Also, emergency officials generally have adequate time to close roads that are usually covered with flood water. However, during the 1995 flood, a truck driver was killed while hauling rock to secure a railroad bridge piling. Apparently, he ran his truck into the river and drown.

Here in Skagit County, our primary threat is property damage. Typically, restoration costs to both public and private property range in the millions of dollars per event. Homes constructed in the floodway are in high velocity zones during flood stage and are structurally threatened. Structures located in the flood plain are inundated with slower moving water. Roadways constructed near bends in the river are often threatened, although road crews are usually dispatched to secure roadways if time allows.

II. Flood Safety

Many people living in Skagit County do not realize they live in a flood hazard area. Many people are new to the area, while others move into a high hazard area unknowingly. Education remains a key avenue to improve flood safety.

Property protection is another key area to focus efforts. The primary threat from floods in Skagit County is damage. Focusing on the following safety tips will help protect both public and private property.

1. Remind residents to purchase flood insurance.
2. Assist residents in preparing for flooding and evacuation. Keep information on hand for family preparedness.
3. Publish tips on retrofitting techniques in each city or county publications.
4. Continue staff training during Flood Awareness Week.

And lastly, encouraging residents to purchase flood insurance will not only remind people of the flood dangers, but will help the community rebuild one house at a time after a disaster.

III. Property Protection Measures

Inform residents in each city or county flood mailing that free technical assistance on retrofitting is available through the local building department. Publish simple retrofit techniques in each city or county flood mailing. Encourage residents to consider possible areas to floodproof. Electrical panel boxes, furnaces, water heaters, washers, and dryers should be elevated or relocated if in a flood hazard area. Basement floor drains and interior and exterior backwater valves can be installed, and interior floodwalls can be placed around utilities. Consider moving essential items and furniture to upper floors or attics. Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing.

IV. Current Flood-related Public Information Outreach Activities

1. Burlington mails out a Public Information Bulletin titled Flood Hazard Reduction each spring and fall to every address in the city.
2. Mount Vernon publishes a flood section each quarter in *The City News and Community View* publication, distributed through the Skagit Valley Herald.
3. Skagit County mails out a flood brochure titled *Flood Information for Skagit County* each year to every address in the county. The County also mails a more targeted letter with a second copy of this brochure to the repetitive loss properties.
4. Burlington offers free elevation certificates for city residents, helping to raise interest in flood insurance.
5. The County is working with the Corps of Engineers on a Flood Feasibility Study. As part of the study, a series of six public meetings on flood-related topics are being held. Topics include Flood Risk and Economic Impacts, Bypass, Dredging, Overtopping/setback Levees, and Non-structural Alternatives, and Upstream Storage and Flood Warning. The County also publishes a quarterly newsletter titled *The Skagit Current* to keep citizens informed of the study and meetings.
6. Skagit County and the Skagit Valley Herald publish an annual flood insert page in the newspaper that contains articles on flood preparedness, flood insurance, an evacuation map, and the names of contractors able to retrofit structures.

7. Mount Vernon and Skagit County are completing major acquisition programs, during which homes in high hazard areas were removed. The permanent open space reminds the community of flood dangers.
8. Skagit County coordinated Flood Awareness Week each year, during which staff and citizens are trained in flood fight procedures and sandbagging techniques. During the week, Army Corps of Engineer staff meets with county and local dike district for better coordination during an actual event.
9. TCI Cable aired *The Skagit River - Will it Flood Again?* video five times in September.

V. Goals for Our Public Information Program

1. Encourage private homeowners to purchase flood insurance.
2. Encourage private homeowners to protect their own property.
3. Expand public outreach.
4. Increase exposure of the flood video titled *The Skagit River - Will it Flood Again?*

VI. Outreach Projects for 1999

1. Adopt Slogan: *Got flood insurance?*
Responsibility: OPS Committee
Implementing Goals 1 and 3
2. Develop and adopt icon to correspond with slogan.
Responsibility: Margaret
Implementing Goals 1 and 3.
3. Work with Assessor's office to have slogan and icon printed on October tax statements.
Responsibility: Jennifer
Implementing Goals 1 and 3.
4. Have slogan and icon printed on city utility bills.
Responsibility: Margaret, Joe, Erica.
Implementing Goals 1 and 3.
5. Advertise slogan and icon on city garbage trucks.
Responsibility: Margaret, Joe, Erica
Implementing Goals 1 and 3.
6. Ask PUD to print icon and slogan on utility bills.
Responsibility: Jennifer
Implementing Goals 1 and 3.

7. Design 1999 Flood Awareness Week insert to fit in phonebook. Look into cost of laminating inserts.
Responsibility: OPS Committee
Implementing Goals 1, 2, and 3.
8. Add practical tips such as “How to Flood Proof your Home” in annual mailing.
Responsibility: CRS Coordinators
Implementing Goal 2.
9. Ensure accurate emergency information to Bellingham stations.
Responsibility: Don
Implementing Goal 3.
10. Contact the Argus, Herald, Times to see if they would run a monthly article on flood related topics.
Responsibility: Don
Implementing Goals 1, 2, and 3.
11. Develop subject topics for monthly articles each quarter.
Responsibility: OPS Committee
Implementing Goals 1, 2, and 3.
12. Draft monthly articles.
Responsibility: To be decided.
Implementing Goals 1, 2, and 3.
13. Continue sandbag training as part of Flood Awareness Week 1999.
Responsibility: CRS Coordinators
Implementing Goals 2 and 3.
14. Conduct Mall Display as part of Flood Awareness Week 1999. Show flood video at display.
Responsibility: Committee
Implementing Goals 1, 2, 3, and 4.
15. Check with the Board of County Commissioners to see if the flood video titled *The Skagit River—Will it Flood Again?* could be aired during their regular time on the local television station.
Responsibility: Jennifer
Implementing Goals 1, 2, 3, and 4.
16. Update brochure *Flood Information for Skagit County*. Include CRS Coordinators’ names and phone numbers.
Responsibility: Jennifer
Implementing Goals 1, 2, and 3.
17. Coordinate mailing next fall between cities and the county.
Responsibility: CRS Coordinators.
Implementing Goal 3.
18. Discuss future coordination of flood information through schools with school districts.
Responsibility: Margaret
Implementing Goal 3.

19. Update county Web page each quarter. Develop county flood page, and link it to other flood pages, including USGS.
Responsibility: Jennifer (Penny)
Implementing Goals 1, 2, and 3.
20. Ask Haggen and Brown and Cole to print icon and logo on paper grocery bags.
Responsibility: Clay and Margaret
Implementing Goals 1 and 3.
21. Contact FEMA for grant funding to implement this strategy.
Responsibility: Clay and Margaret
Implementing Goals 1, 2, 3, and 4.
22. Look into potential flood impacts from volcanic activity. Include article on this subject in monthly series.
Responsibility: Joe
Implementing Goal 3.

VII. Monitoring and Evaluation of Outreach Projects

The OPS Committee will meet on a quarterly basis. During the quarterly meetings, the Committee will review and prioritize the task list, and further define responsibilities for major tasks such as the mall display.

Dare County, North Carolina

As with Skagit County, the communities in Dare County wanted to prepare a joint public information strategy. At the initial meeting, there was some doubt if this could be done because some participants challenged whether there would be any benefit. For example, one of the concerns was how to publicize regulatory requirements when the communities had different standards. After the first meeting, there was no consensus that a joint program would even be drafted.

As these items were discussed at the second meeting, it became apparent that there would be benefits, especially cost savings, of coordinating the work of the six communities. The document on the following pages is the result.

Here are some helpful conclusions this group drew about the OPS process:

- Let the participants' discussion run its course—air local concerns and determine what people want first, then worry about CRS credit.
- A coordinated approach sends a consistent message and reduces confusion when people hear different things from different sources.
- A joint approach can reduce each community's costs in providing the annual mailing to residents, freeing funds for other public information activities.
- Working together provides technical and financial resources to do things individual communities were not doing. Dare County will start holding retrofitting workshops and will establish a Web page for flooding.
- The private sector is more willing to participate in a coordinated program. It does not want to be involved in duplicative and inefficient efforts with separate local governments in a small area. For example, without this cooperation, the Home Builders would not participate in the workshops.

Note how the document itself will document that each participating community will adopt the joint strategy.

Joint Public Information Strategy for Flood and Hurricane Mitigation

Dare County, North Carolina
Town of Kill Devil Hills, North Carolina
Town of Kitty Hawk, North Carolina
Town of Manteo, North Carolina
Town of Nags Head, North Carolina
Town of Southern Shores, North Carolina

Purpose: The purpose of this joint strategy is to develop coordinated public information programs that will better inform residents, absentee property owners, and visitors on how they can protect themselves and their property before and during a hurricane or coastal storm.

Strategy Preparation: The public information strategy was prepared by representatives from the county and each municipality, State Farm, and the Blue Sky Foundation of North Carolina, Inc. The committee used an eight step process to develop the proposed strategy. Those steps included:

1. Identify the flooding and hurricane problems that need the attention of the public.
2. Identify the goals of the public information strategy.
3. Identify the messages that should be conveyed to the public.
4. Identify the best ways to communicate those messages.
5. Review current public information activities to determine if a comprehensive program is in place, and if the current approaches can be improved through cooperation and coordination.
6. Develop a list of potential public information activities.
7. Review the list to identify those activities where there are advantages to coordination and cooperation, and those that each local government should continue to perform independently.
8. Prepare a written draft for review by each local government and organization with identified responsibilities.

Flood and Hurricane Hazards: Dare County, particularly the Outer Banks area, is vulnerable to coastal storms and hurricanes. Typically, several severe winter storms or “Nor’easters” occur each year between mid-October and mid-April. As Atlantic coastal waters cool, low pressure systems are formed and thereby create conditions favorable to the formation of intense winter storms. These storms normally generate winds ranging from 35 to 50 miles per hour, but can sometimes reach lower hurricane intensity. The primary impact comes from the force exerted on the water surface by continuous high winds. This generates intensive and heightened wave action, which increases beach erosion. An extreme Nor’easter may even generate a storm surge, causing extensive flooding and bring wave action inland. While the storm surge accompanying hurricanes generally recedes after one or two high tides, the surge from a persistent Nor’easter may last for four or five successive high tides. The highest tides and strongest winds in a Nor’easter occur farther from the storm’s low

pressure center than in a hurricane; thus a Nor'easter can cause widespread damage even though its center is several hundred miles at sea.

During the past ten years, there has been a noticeable increase in both the frequency and intensity of these storms. In April 1988, a winter storm generated 55 mile per hour winds and 10 foot seas that washed over highway 12 and closed down ferry service to and from Hatteras Island. During a three week period in March of 1989, three successive winter storms caused major beach erosion (up to 100 feet in some areas) and damage totaling \$5 million. The Halloween Storm of 1991, a Category 5 Nor'easter, damaged or destroyed dozens of beach cottages by wave and storm surge, flooded miles of road and eroded beaches and frontal dunes. Damage totaled \$7 million. The "Storm of the Century" in March of 1993 brought sustained winds of 41 mph with gusts up to 63 mph. It generated water levels up to 7.5 feet above mean sea level, spawned three tornados and resulted in damage of \$3 million.

While occurring less frequently than winter storms, hurricanes strike the Outer Banks often enough to cause significant concern. North Carolina's Outer Banks are particularly susceptible to the effects of hurricanes due to the projection of the land mass into the Atlantic. Even in the absence of landfall, hurricanes deflected by inland high pressure systems travel north along the coast and affect the barrier islands.

Hurricane Emily, a Category 3 hurricane, grazed Hatteras Island on Tuesday afternoon, August 31, 1993. The hurricane's eye came within 20 miles of Cape Hatteras, but did not pass over the Outer Banks. When the winds shifted from the northeast to the northwest, water was forced onto the island from Pamlico Sound washing several homes from their foundations. Wind measuring equipment in the area recorded gusts of 107 miles per hour.

On September 10, 1993, the President declared Dare County a major disaster area as a result of damage from Hurricane Emily. The original declaration was for Individual Assistance (IA) only for Dare County, but was later amended on September 23, 1993 to include Public Assistance (PA) for the Cape Hatteras school.

As a result of Emily, 160 homes were destroyed, 216 experienced major damage, and 144 received minor damage. Manufactured homes were particularly impacted by the hurricane. Approximately 85% of the destroyed homes were manufactured homes ravaged by the high winds and/or shifted off their piers by the storm surge. Older houses on Hatteras, those built before the elevation requirements of the NFIP, were also severely affected.

Focus of the Strategy.

Coastal storms can be devastating to homeowners, businesses and local governments, but it doesn't need to be that way. The focus of this strategy is to develop effective public information activities that provide our citizens and visitors with information on the risks from natural hazards, and the actions they can take to keep their families safe and protect their property.

Goals for the public information program.

1. Enhance the public's knowledge of how to live with a coastal environment.
2. Increase the number of properties where protection measures are implemented.
3. Improve citizen knowledge of regulatory requirements for:
 - a. substantial improvement and substantial damage
 - b. permit requirements and procedures
 - c. enclosures
4. Get people to evacuate when the warning is issued.
5. Increase the purchase of flood insurance.

Messages to be Included in the Public Information Program:

1. Know the Coastal Environment - Be Stormwise:

- The coast is an ever-changing environment. We must design to live with nature or be prepared to suffer the consequences of doing otherwise.
- As time passes, natural environmental processes change the risks and vulnerability of living in a coastal area. Building sites that sit behind dunes today may not be protected in the future. Selecting a building site and a structure's design should include an analysis of present and possible future conditions.
- The most dramatic change occurs with frequent overwashes or breaches during a hurricane. Initially, water moves from the sea inland as the storm approaches. Once the eye of the storm passes, the water that has accumulated on the landward side of the barrier island overwashes the island as it rushes seaward. Sometimes new inlets are formed.
- All dune systems are subject to erosion in major storms. Structures without the protection of a frontal dune system are particularly vulnerable to storm surge. Therefore, existing dune fields should be maintained using native vegetation and sand fencing to promote additional dune growth.

2. Coastal Hazards and Property Protection:

- Know the flood zone of your home. Flood risk information is available from your local government. Contact your Planning or Building Inspection Department for information on the flood zone and flood elevation for your home or building site.

- Know the maximum storm surge that might occur. Information about the potential for inland flooding and storm surge is available through your local Emergency Management Office.
- Know the elevation of your home. This information is on the elevation certificate prepared for your home by your land surveyor. If you don't have a copy of the survey check with your surveyor or your local Planning or Building Inspection Department. Knowing the elevation of your home and the potential flood and storm surge elevations for your building site can help you know what to do to protect your life and property.
- High winds, storm surge, scour and coastal erosion enhance the probability that structures with shallow piling depth will be destroyed. Owners of structures with shallow pilings should consider retrofitting and/or relocating these structures.
- Storm surge causes severe damage to structures with enclosures below the base flood elevation. Owners of elevated structures who have enclosed the area beneath the original finished floor are encouraged to remove these additions.
- When houses along the oceanfront are destroyed, their loss may be magnified as they damage or destroy houses along the second row. Owners of older structures along the oceanfront are encouraged to consider retrofitting and/or relocating these structures.
- There are several ways to protect a building from flood and wind damage. Your Building Inspection Department has information on these protection measures. On request, site visits will be made to help you select the most appropriate protection measure or measures. This service does not include the preparation of detailed construction specifications and is not intended to compete with services offered by local engineers or architects.

3. Regulatory Requirements:

- Building permits are required for the repair or reconstruction of a damaged building. Applications for permits can be obtained from the local building inspection department.
- Development activities on properties located in flood hazard areas require a permit from the Building Inspection Department. Development activities are any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.
- Streams, channels, and detention and retention basins can lose their carrying capacities as a result of dumping, debris, sedimentation, and growth of vegetation. When a drainage system loses a portion of its carrying or storage capacity, overbank flooding occurs more frequently and floods reach higher levels. Dumping in these areas is a violation of regulations and should be reported to your local Police Department.

- Buildings that are substantially damaged must be brought up to the current flood ordinance standards for new construction. Damage caused by any hazard, not just flooding, is included in the substantial damage determination.
- Enclosures under an elevated structure increase the degree of damage a structure will experience during a flood or hurricane. Learn about local enclosure regulations by calling your Building Inspections Department.
- Financial assistance with meeting the current code may be available through your flood insurance policy increased cost of compliance coverage.

4. Hurricane Evacuation:

- Even though meteorologists have made improvements in the forecasting and tracking of severe weather, especially hurricanes, there is no way to predict far in advance exactly how a storm will affect an area or when it will hit.
- By being aware and staying tuned in to local radio stations and television broadcasts, the general public is able to find out what to do, when to do it and where to go. Public information activities will tell citizens and visitors where they can get the latest information on a storm and instructions on what they should do.
- Flooding can begin well before a hurricane nears land. Ferry service ceases with the onset of 40-mph winds. Citizens and visitors will be advised on evacuation procedures, actions to take to secure and protect property before evacuation, safety measures, evacuation routes, and shelter locations. Residents will be advised to tune to radio and television stations for these advisories.

5. Flood Insurance:

- Know what your insurance will cover. Review your insurance policy coverage to ensure you have adequate coverage. Your homeowners insurance does not cover losses due to flooding.
- Find out if your home is in a flood hazard area. Contact your local Building Inspection Department if you need flood zone information. Once you have identified your risk, protect your investment by purchasing flood insurance on your home and its contents.
- Flood coverage from the National Flood Insurance Program is not available in areas shown on the FIRM to be an “undeveloped coastal barrier” or “otherwise protected area” of the Coastal Barrier Resources System.
- There is a 30-day waiting period before flood insurance policies become effective. Don’t wait for the next storm to purchase flood insurance coverage.
- Flood insurance is required whenever financial assistance from a federally regulated institution is used to construct, repair or add to a building in the special flood hazard area.

- There are many factors that affect the price you'll pay for flood insurance. The higher your flood risk, the higher your premium. You will pay a lower premium if you elevate the lowest floor of your home 1-3 feet above the base flood elevation. For existing homes, some people can do this by eliminating enclosures below their elevated living space.
- You will pay lower flood insurance rates because your local government participates in the Community Rating System of the National Flood Insurance Program.

Current Flood Related Public Information Activities

<u>Activity</u>	<u>Dare Co.</u>	<u>Kill Devil Hills</u>	<u>Kitty Hawk</u>	<u>Manteo</u>	<u>Nags Head</u>	<u>Southern Shores</u>
Mail Brochures						
All Residents						
SFHA						
Repetitive Loss						
Civic Meetings						
Publications in Library						
Booth at Public Functions						
Retrofit Workshop						
Map Information						
Technical Assistance						

1999 Public Information Strategy Activities:

1. Mail Brochures: Local governments will continue mail a brochure to their residents each year. The county and municipalities will review their brochures to ensure the messages are coordinated.
2. Brochures to Repetitive Loss Property Owners: Each jurisdiction will continue to send mailings to repetitive loss property owners as it determines necessary.
3. Civic Meetings: A meeting package that provides information on the flood and hurricane mitigation programs of each community will be prepared for use at civic meetings. Since members on these groups tend to cross jurisdictional lines, this will be a more effective approach for the civic groups and for the municipalities and the county. This package will include the appropriate program descriptions and contact information for each local government.
4. Website: Dare County is developing a Website that will include information on hurricane evacuation, flood hazards, inundation maps from the SLOSH model, evacuation routes, safety measures, property protection measures, and other topics. This will be expanded to include regulatory

information from each municipality, including procedures to be followed for rebuilding or repairing a structure following a disaster. It will be linked to the Blue Sky Website, which includes information on property protection and hazard resistant construction.

5. Publications in the Library: Dare County will continue to coordinate the placement of general publications in the library for all of the local governments. Each jurisdiction will be responsible for placing copies special publications that apply to it alone in the library (i.e. its Flood Insurance Rate Map, Flood insurance Study, land use study and other reports).

6. Retrofit Workshop: The annual retrofit workshop conducted by the Town of Nags Head will be expanded to include the county, other municipalities and the Blue Sky Foundation of North Carolina. It is expected that multiple retrofit sites will be utilized in the workshop, including the Blue Sky Training Center in Southern Shores. The Outer Banks Home Builders Association will also be invited to participate.

7. Map Information and Technical Assistance: Each jurisdiction will continue these activities as it deems necessary.

8. AM Radio Transmitters: Dare County is working to place AM radio transmitters at strategic locations to provide evacuation messages. This same system can be a very effective way to provide public service information to property owners as they return to the county and are passing through check points. Working with the municipalities, the county will prepare pre-recorded messages to be aired following a disaster. These messages will provide information on building permit procedures. Property owners and rental management firms will be reminded of regulations concerning substantial improvement and substantial damage, coastal setbacks, sand pushing restrictions and similar rules. Messages encouraging property loss reduction measures will also be prepared.

9. Map Information Service: Lenders, insurance agents and real estate agents will be advised on the availability of flood map information from local governments annually through the brochure mailed to each developed property. Additionally, because of the significant role they have in advising property owners and potential buyers, they will also be sent a special mailing describing this service at least every three years. Dare County will provide this service to lenders, insurance agents and real estate agents within the county.

Monitoring and Evaluation: Each local government will keep records so that an evaluation of the impact of the public information program can be conducted. At least annually, representatives of the local jurisdictions and private agencies will meet to determine if changes in the public information strategy are needed.

Based on the public information activities, the following benefits are expected. Each will be measured to determine the level of progress being achieved.

Goal: 1. Enhance the public's knowledge of how to live with a coastal environment.

Measure: People will respect the coastal environment and design with the forces of nature in mind. Evaluation will be based on the increased request for information on how to build safer.

Goal: 2. Increase the number of properties where protection measures are implemented.

Measure: Retrofit activities should increase. Evaluation will be based on the level of permit activity for retrofit actions.

Goal: 3. Improve citizen knowledge of:

- a. regulations related to substantial improvement and substantial damage, permit requirements and procedures, and enclosures.*
- b. measures they can take to reduce the costs of their flood insurance premium.*

Measure: More property owners should know about permit requirements following a disaster. Thus, there should be fewer cases where property owners fail to obtain proper permits. Evaluation will be based on field surveys to identify violations.

Goal: 4. Get people to evacuate when the warning is issued.

Measure: Evacuations should be completed in an orderly manner and within the 18-hours identified in the Evacuation Plan.

Goal 5: Increase the purchase of flood insurance.

Measure: There should be an increase in flood insurance policy coverage. This will be evaluated based on the change in flood insurance policy count. Additionally, the citizen survey conducted in conjunction with land use plan updates may include questions about how people learned they needed flood insurance.

Approved by Southern Shores this 25th day of February, 1999.

ATTEST:

Cassie Gordon
Town Clerk

Tom Gestson
Tom Gestson
Town Administrator

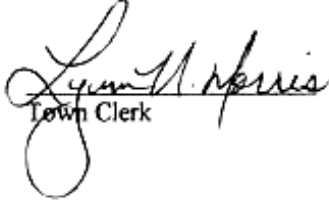
Approved by Kill Devil Hills this 4th day of April, 1999

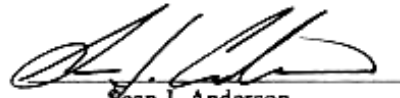

Debra P. Diaz
Town Clerk

Debra P. Diaz
Debra P. Diaz
Town Manager

Approved by Kitty Hawk this _____ day of _____, 1999.

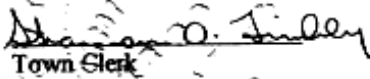
ATTEST:


Town Clerk


Sean J. Anderson
Town Manager

Approved by Manteo this 15th day of March, 1999.

ATTEST:

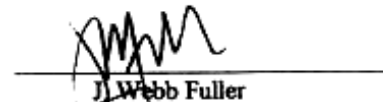

Town Clerk


Kermit W. Skinner, Jr.
Town Manager

Approved by Nags Head this 8th day of March, 1999.

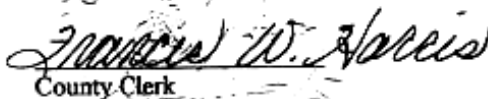
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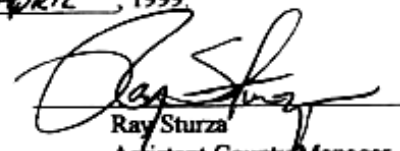

Town Clerk


J. Webb Fuller
Town Manager

Approved by Dare County this 9th day of April, 1999.

ATTEST:


County Clerk


Ray Sturza
Assistant County Manager

ATTACHMENT A

FLOOD AND HURRICANE WARNING AND RECOVERY MESSAGES

General Preparations for a Storm

- To reduce loss of lives and property, advance preparation for a hurricane, coastal storm, or flooding is important.
- Determine if you are in a flood hazard area. To find the flood zone of your home, check your flood insurance policy or contact the Building Inspector. The Building Inspector may also be able to tell you: the elevation of your home, whether your home is in a special hazard area; the base flood zone elevation, and if your home is subject to storm surge.
- Identify the things you can do to protect your family and property.
- Plan your evacuation route.
- List your personal property for insurance purposes.
- Review your insurance policy and take advantage of flood insurance.

Before a hurricane, storm, or flood threatens the area...

- Monitor storm reports on radio and TV.
- Plan your evacuation route early.
- Listen to the radio to find the location of the nearest inland shelter. (Due to the low ground elevation and potential for flooding, there are no facilities in Dare County intended for a public shelter.)
- Check batteries for transistor radios and flashlights.
- Know how to use candles, matches, and lamps safely.
- Keep at least one-half tank full of gasoline in your vehicle.
- Store packaged food and canned goods in the event there is no electricity.
- Fill clean containers with drinking water - enough for several days.
- Have shutters, lumber, and masking tape available for protecting doors and windows.
- If you live in a mobile home, plan to evacuate.

When a hurricane warning is issued...

- Listen to radio or TV for directions and weather advisories.
- Anchor or bring in outside objects, i.e., garbage cans, lawn furniture, and other loose objects.
- Board up or shutter large windows and tape small windows with masking tape to reduce shattering.
- Store valuable and personal papers in a safe, water-proof location.

If you stay at home...

- Keep radios and TVs tuned in for the latest instructions.
- Stay inside away from doors and windows. Don't go outside in the brief calm during the passage of the storm. Do not venture outside to look at the ocean or sound - these waters can rise very quickly.

If you evacuate...

- Know where you are going. Leave early and in daylight, if possible.
- If you go to a shelter, take needed personal items, special dietary needs, infant foods, etc. (Pets are not allowed.)
- Turn off as many utilities as you can safely. Do not touch any electrical equipment unless it is in a dry area, or you are standing on a piece of dry wood while wearing rubber-soled shoes or boots and rubber gloves. If condition warrant, water and electrical service to your home or business may be discontinued.

After the hurricane, coastal storm, or flood...

- If you have evacuated, return only when advised by local officials.
- Beware of outdoor hazards such as glass, nails, loose or dangling power lines, etc.
- Guard against spoiled food and do not use water until safe.
- Obey notices placed on buildings that prohibit or restrict entrance to the structure.
- Obtain necessary permits before starting the repair of the structure.
- Consider making repairs using methods and materials that will reduce future losses.
- Check with the building inspection department if you need assistance with identifying measures that will reduce your losses during future storms.

Property Protection Measures

Every year, flooding causes more property damage in the United States than any other type of natural disaster. While recent improvements in construction practices and regulations have made new homes less prone to flood damage, there are a significant number of existing homes that continue to be susceptible to repetitive flood losses. Repetitive flood losses can make owning property near a body of water less enjoyable and can even decrease property values.

Some repetitive loss property owners have reduced their flood losses by taking temporary measures such as moving furniture and utilities to upper floors or to higher elevations. More permanent approaches have also been used. The Federal Insurance Administration has published a manual that describes various techniques that can be used to floodproof existing buildings. This process is also known as "retrofitting." The Design Manual for Retrofitting Floodprone Residential Structures presents a series of permanent retrofitting measures that can reduce or eliminate the potential of future flooding. The measures covered include: elevation of a structure, relocation of a structure, sealing a structure, protection of utilities, and using levees and floodwalls.